

AUGUST, 1953

# **MATERIAL FLOW**

HANDLING • PRODUCTION • PACKAGING AND SHIPPING

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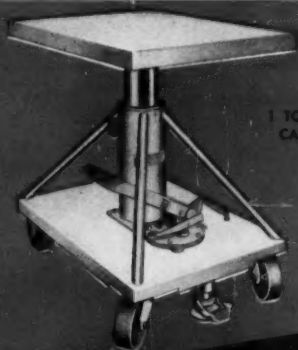
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Flow Circulation

35,294 FLOW BASIC

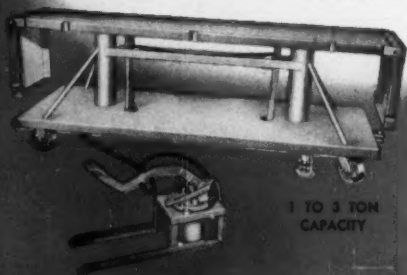
104,247 FLOW QUARTERLY



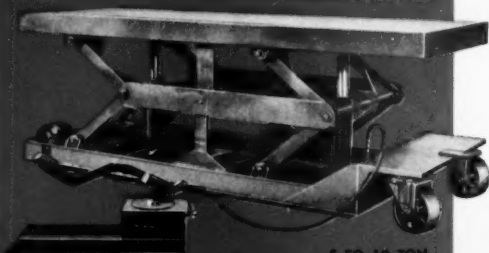
1 TO 3 TON  
CAPACITY

**RACK**

## HYDRAULIC ELEVATING TABLES HEAVY DUTY TYPES



1 TO 3 TON  
CAPACITY



5 TO 10 TON  
CAPACITY

**INCREASE OUTPUT  
IMMEDIATELY  
THROUGH PROPER  
STOCK POSITIONING**

Valuable production time is often lost because of unnecessary manual handling at the machine. Rack Hydraulic Portable Stock Positioners ease the operator's work . . . cut fatigue . . . speed production.

1-ton to 10-ton capacity are standard models. We design and manufacture to customer specifications.

*Rack Engineers have the profit making answers to your production problems . . . We'll show you how. Just phone or write . . . there's no obligation*

**TEST EQUIPMENT AVAILABLE**



**RACK HYDRAULIC EQUIPMENT**

**C O R P O R A T I O N**

CONNELLSVILLE, PENNSYLVANIA

AGENTS IN PRINCIPAL CITIES UNITED STATES, CANADA, EUROPE



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# 30,000<sup>TH</sup> AUTOMATIC TRANSPORTER COMES OFF THE LINE!



John A. Baldinger, General Manager of Automatic and H. G. Franklin, Chief Engineer in charge of Transporters, see 30,000th Transporter come off line.

## TWICE "ROUND THE WORLD"

In continuous operation in our own plant since 1942, this Automatic TRANSPORTER, one of the first off the line, has traveled an estimated 50,000 miles—over twice around the world!



Send today, for case histories of Automatic cost-cutting in your industry.

# Automatic

**WORLD'S LARGEST EXCLUSIVE BUILDER  
OF ELECTRIC DRIVEN INDUSTRIAL TRUCKS**

Yes, throughout industry, you see more Automatic TRANSPORTERS than any other operator-led electric truck. And little wonder, when you consider that—in addition to their superior, trouble-free performance, and their lower maintenance and operating costs, to our knowledge, *no Automatic TRANSPORTER has ever worn out!* That's because of "knowhow" gained by Automatic in building the world's most complete line of electric-driven industrial trucks and attachments . . . since 1906. Before you buy any industrial truck, get the full facts on Automatics. Because there's a cost-cutting, "keyed-to-the-job" Automatic truck for most every materials handling job.

## Automatic

141 West 87th Street, Dept. M-3  
Chicago 20, Illinois

Please send complete facts:  
—on Automatic TRANSPORTERS  
—on Automatic's full line of industrial trucks  
—with case histories that apply to our business

Company name: \_\_\_\_\_

By \_\_\_\_\_

Position \_\_\_\_\_

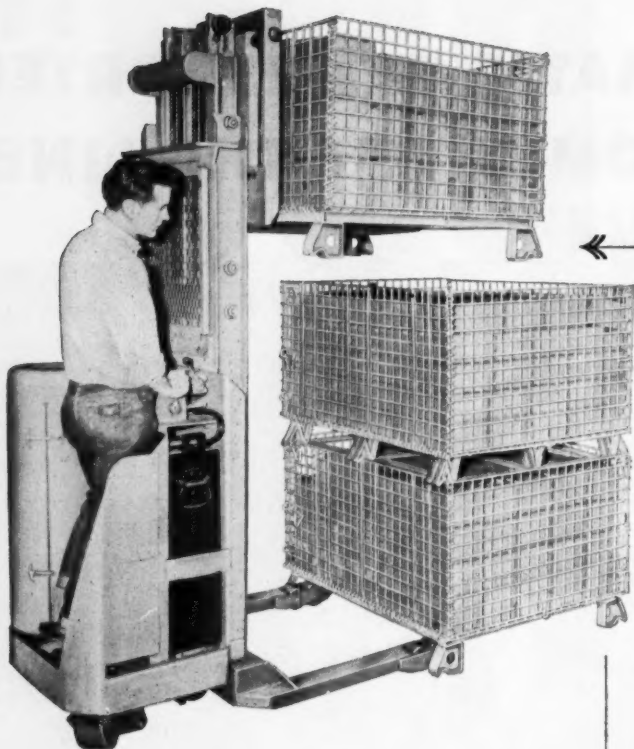
Street Address \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_

State \_\_\_\_\_

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**4**-leg  
arrangement  
of the new  
**Cargotainer**  
allows the use  
of all types  
of handling  
equipment

The extra-sturdy construction of the new *Clearview* Cargotainer has permitted the complete elimination of center legs, and as a result all types of handling equipment may now be used. This open center also allows loading above the top wires without stacking difficulty. Other new advantages include:

1. Special corner plates to resist unusual shock.
2. New corner design for easier stacking and more secure locking.
3. Five folded Cargotainers now occupy the space of one unfolded.

The new *Clearview* Cargotainer will stack interchangeably with the standard model (see photo above) which will continue to be available for lighter applications. For full information and prices, write to us, Dept. FL, Pittsburgh Steel Products Company, Grant Building, Pittsburgh 30, Pa.

# CARGOTAINERS

**by Pittsburgh Steel Products Company**

**A Subsidiary of Pittsburgh Steel Company**

Circle No. 99 on Reader Service Card for more information

AUGUST, 1953 • FLOW

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COMMERCIAL REFRIGERATION  
AND AIR CONDITIONING

# MATERIAL FLOW

AUGUST, 1953  
VOLUME 8, NO. 11

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#### Published Monthly

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**GOODYEAR NOW OFFERS  
A COMPLETE LINE OF**

# **PNEUMATIC INDUSTRIAL TIRES**

*for Wide Base  
(Super Width) Rims*

To meet your particular needs, Goodyear now offers a complete line of Pneumatic Industrial Tires to fit the new Wide Base Rims. These sturdy tires with the wide, flatter tread and increased air volume offer low rolling resistance, greater stability and longer wear.

Goodyear will be glad to send a fully qualified technical expert to your plant—to analyze your operation and recommend the most efficient type of tire for your service. His services are free, of course. To bring him, write:

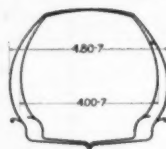
Goodyear, Industrial Tire Sales, Akron 16, Ohio.



**HERE ARE SOME OF THE  
BIG ADVANTAGES  
YOU GET WITH GOODYEAR  
WIDE BASE TIRES**

Wide, flatter tread—longer wear  
Lower cost per mile  
Low rolling resistance  
Greater cross-section—more air volume  
Increased flotation  
Greater stability

Here are the sizes of Goodyear tires that fit the new Wide Base Rims. Note, for example, in the new size marking, the 400 x 7 is now marked 480/400 x 7.



280/250 x 4  
340/300 x 5  
340/300 x 7  
410/350 x 6  
480/400 x 7  
480/400 x 8  
530/450 x 7  
570/500 x 8

# **GOOD YEAR**

**INDUSTRIAL TIRES**

We think you'll like THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network

Circle No. 59 on Reader Service Card for more information

AUGUST, 1953 • FLOW

# get MORE for your truck dollar from



**ELWELL-PARKER**

A combination of fork and low lift platform trucks are used in this large grocery warehouse to gain the advantages of both. This platform truck is making a long haul to the order-picking section. A fork truck will later place the top load on the floor.

## because **ELWELL-PARKER —**

**Furnishes ALL types**—Elwell-Parker gives *unbiased* advice since it produces both gas and electric trucks. Basic models include high and low lift platform trucks, fork trucks, mobile cranes, tractors.

**Builds trucks that cost less to operate**—Unequalled design experience cuts maintenance costs and expensive delays due to truck breakdowns.

**Offers FREE analysis by materials handling consultants**—Resident E-P field men in all principal cities will survey your plant and help you select the most efficient handling system.

**Provides service help**—E-P Service Engineers make

periodic calls to instruct your drivers and advise your maintenance department about proper servicing.

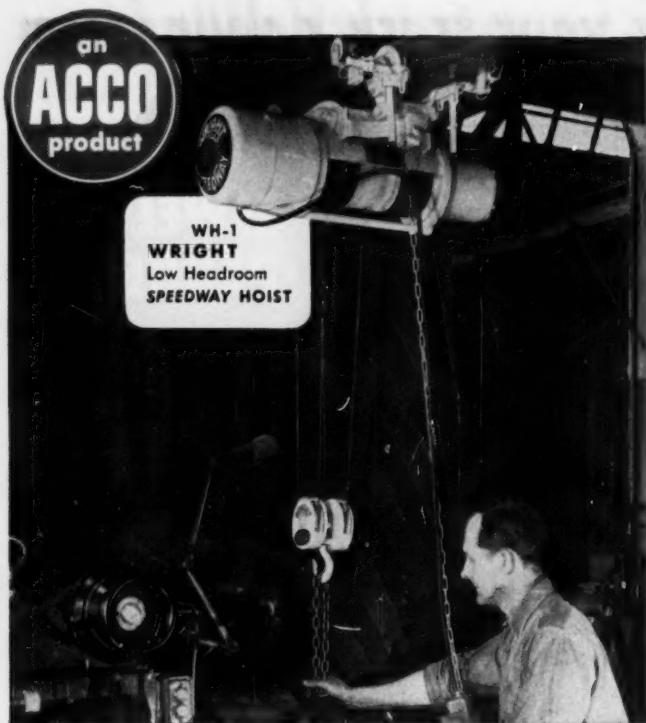
Get the full story on these *Plus Features* by writing for this General Catalog. The Elwell-Parker Electric Co., 4238 St. Clair Ave., Cleveland 3, Ohio.



**ELWELL-PARKER**  
**POWER INDUSTRIAL TRUCKS**  
Established 1893

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## Is Hoist Headroom a Headache for You?

• Look at this. The bearing point of the hook of this **WH-1 Low Headroom WRIGHT Speedway Hoist** can be raised so it is only 12¼ inches below the beam. And this is a 1-ton hoist with the five key features that make **WRIGHT Speedways** last longer and require less servicing.

This hoist has heat-treated and surface-hardened alloy steel gears, hard alloy silver electrical contacts in controller, heavy duty crane type safety limit stop, automatic multiple disc load brake, and ball bearing gear shafts.

Add to this grooved cable drums, improved plow steel preformed cable, concealed motor wiring, completely enclosed and ventilated weatherproofed housing, etc., and you'll have a combination of features found only in the **WRIGHT Speedway Hoist**.

Best of all—**WRIGHT Speedways** are priced no higher than ordinary hoists. In the long run they'll cost you less.

So see your **WRIGHT Hoist** distributor today for full information or write our York, Pa., office.

**ACCO**



**WRIGHT HOIST DIVISION  
AMERICAN CHAIN & CABLE**

York, Pa., Chicago, Denver, Detroit, Los Angeles, New York,  
Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

**WRIGHT**

**Hoists  
Trolleys  
Cranes**

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## LETTERS to the editors

### Inquiries Mean Customers

To FLOW:

Thank you for your recent report pointing out that you have sent us 76 inquiries as a result of the publication of our advertisements or other publicity appearing in **FLOW** during the last half of 1952.

Including those which you sent directly to us we have been able to trace 160 inquiries during the three months ended Dec. 31st, and 142 inquiries in January and February, 1953, directly to **FLOW** publicity and advertising.

This is certainly excellent performance and we thank you for your cooperation.  
H. O. Frohbach  
Chart-Pak, Inc.

*A considerable degree of satisfaction is derived from letters like this one which continually reassure us that we are meeting with some measure of success in accomplishing the job we set out to do.*

### A Real Step Forward

To FLOW:

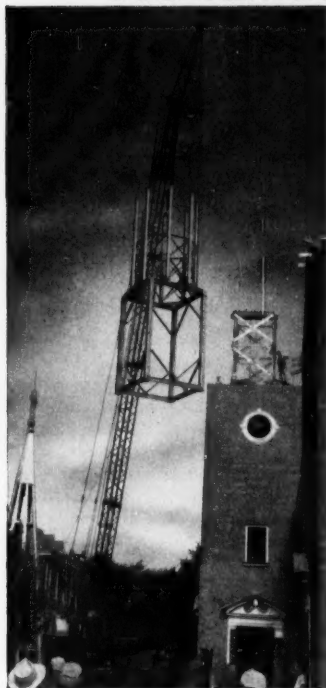
On behalf of the Association I would like to express our appreciation for the interesting and well-written article on our Equipment Standardization Program which appeared under "Highlights of the Month's News" on page 24 of the April issue of **FLOW**.

As you know, Jim Hanson and his several committees are working hard on this project, and I know this kind of editorial support is gratifying to them.

H. P. Dolan  
Caster & Floor Truck  
Manufacturers' Ass'n.

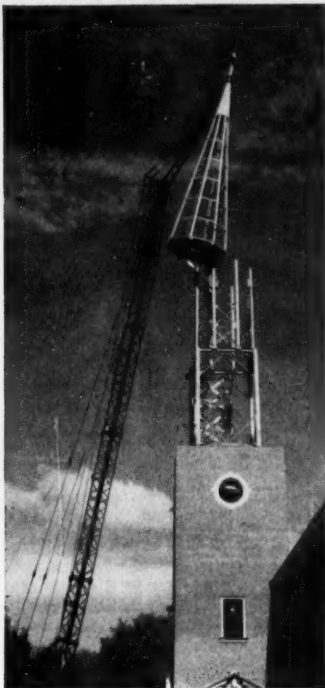
AUGUST, 1953 • FLOW

# NO MATTER WHAT THE JOB — You can do it better with a versatile LIMA

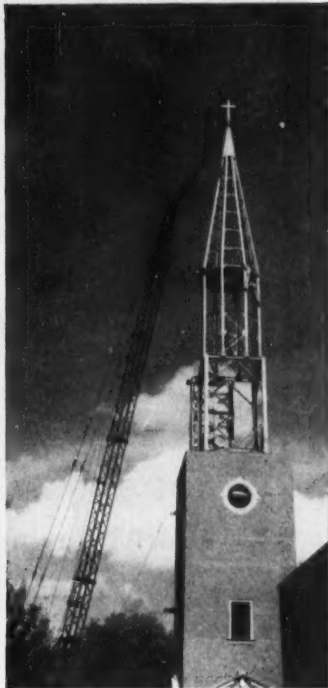


Photos courtesy of Roanoke Times, Roanoke, Va.

● Lima 34-T crane lifting 32-foot, 5½-ton rectangular and octagonal shaped section in place on brick base.



● Next the 2,800-pound cone is raised to its spot on top of the lower section of the steeple.



● Note the switch in direction of the 5-foot cross... a last minute change.

A precision job like this one calls for the smooth, sure operation that their Lima 34-T crane gives Hawkins and Cox, Roanoke steel erectors. The seven-ton steeple for the new First Methodist Church in Salem, Va., had to be lifted to 120-feet above ground. This was done effortlessly by the reliable Lima Paymaster Truck Crane.

The crucial test came when a caucus of watching Methodists decided the cross ought to point North-South so that the sun would shine on its faces. Although he had only a few inches of cable left, the

crane operator deftly lifted the entire cone enough so that it could be given a half turn and lowered into place with the sun smiling on the cross.

And anywhere under the sun, you'll find Lima cranes and shovels taking in stride a myriad of diverse tasks. You, too, can count on a Lima shovel (¾ to 6-yards) or crane (up to 110-tons) for any job. If you'll drop us a line, we'll gladly suggest the Lima machine that will give you highest capacity and lowest operating cost for your regular or special work.

**SALES AGENTS IN PRINCIPAL CITIES OF THE WORLD**

**LIMA**  
SHOVELS • CRANES  
DRAGLINES • PULLSHOVELS



**BALDWIN-LIMA-HAMILTON CORPORATION**  
Construction Equipment Division  
LIMA, OHIO, U.S.A.

Construction Equipment Division

"I made a MONKEY out of MYSELF"

PURCHASING  
AGENT



## ... by NOT buying those TOUGHER BUFFALO Conveyor BELTS"

"Sure we've used Buffalo Belts, but I had forgotten how much *longer* they last when I got a chance to buy a 'bargain' belt. Now that 'bargain' belt has given up right in the middle of our busiest season."

*They're made TOUGHER!* Buffalo Conveyor Belts are made from the toughest cotton yarn available on the market. *They're woven TIGHTER* by our exclusive *Wov-In-Wear* weaving process on our own specially-designed looms. *They last LONGER!* Tougher yarns and tighter weaving naturally mean *longer life* for any Conveyor Belt. However, you never pay a premium for any Buffalo Conveyor Belt . . . just the regular established price! Yet

users tell us they last years *longer*. Ask your mill supply man to show you the difference!

### We recommend our "REGULAR" BELTING

FOR practically all conveying jobs where you require a stronger, longer lasting belt and where it is not necessary to have a specially treated belt surface. "Regular" Buffalo Belt is ideal for moving any article such as flour, grain, packaged goods, parts or assemblies while in process of manufacture or packaging, shipping, etc.

Write for  
FREE FOLDER

14 pages of sizes, types and prices

OVER  
200 SIZES  
35 WIDTHS  
7 THICKNESSES

## BUFFALO WEAVING & BELTING COMPANY

309 CHANDLER STREET

BUFFALO 7, NEW YORK

NEW YORK PHILADELPHIA CHICAGO DETROIT LOS ANGELES

## Opinions Welcome

### To FLOW:

We are studying two separate material handling problems and would appreciate information or case histories from issues of FLOW giving reference to special literature and suppliers specializing in these problems:

(1) The handling of lumber from Receiving through Dry Kiln to Planer.

(2) Conveyors between operations involved in mattress manufacture.

L. Arnold

Ideal Upholstering Co. Ltd.

*Here are a couple of problems on which we'd like some outside help. The lumber mills, especially should be able to provide the answer to first question, while the conveyor manufacturers undoubtedly can tell us and Reader Arnold the best way for handling products as bulky as a mattress during manufacture. Let us hear your ideas on the issue.*

### Alert To Safety

#### To FLOW:

In looking through your June 1953 issue we noticed a picture on page 64 which shows an employee riding the battery carrier box of a walking type powered lift truck.

We in this plant consider this to be a very unsafe practice and do not allow any of our employees to ride a truck of this kind at any time because of the many obvious hazards which you will no doubt recognize when looking at it from a safety performance angle.

Realizing that the general interchange of ideas and procedures has been one of the biggest factors in attaining the present high standards of safety performance in industry, we thought you perhaps would appreciate having this brought to your attention.

H. C. Gortzig

American-Standard

*Obviously preoccupied with the merits of the picture as a fine example of aisle marking, we completely overlooked the glaring breach of safety's foremost rule—Don't ride vehicles that are not meant to be ridden.*

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AUGUST, 1953 • FLOW



modern  
handling  
goes  
"UPSTAIRS"



**LEWIS-SHEPARD®**



The MASTER Line

Thanks to high-capacity-to-gross-weight Lewis-Shepard Model "J" Electric Fork Trucks, National Cold Storage Company handles up to one million pounds of goods per day at its Brooklyn plant. In these multi-story buildings, flexible, highly maneuverable fork trucks are a must.

Here's what Mr. Woody Caine of National says about his sturdy Model "J's".

"We have standardized on the Lewis-Shepard "J" for all our storage areas. They are compact . . . permitting efficient operation in any part of the plant. Their over-all weight is completely within the capacity of all our elevators. We get the high lift we need in minimum aisles, 8 and occasionally 7 feet wide."

**GET ALL THE FACTS** Compare and prove to yourself why the "J" is the "Most Maneuverable" truck in the field. Write today for Comparison Charts and Proof Folders.



LEWIS-SHEPARD 24-8 Walnut St., Watertown 72, Mass.

Please send ☐ "Proof Folders" showing L-S Trucks at work  
☐ "Electric Fork Truck Comparison Charts"

Name.....

Company.....

Street.....

City..... State.....

# NEWS VIEWS TRENDS

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## YALE ROAD SHOW STARTS SECOND LEG

The Yale Materials Handling Road Show has started on the second leg of its two-year transcontinental tour demonstrating labor-saving, time-and-money saving equipment to business and industry. First stop on the second leg was the Canadian International Trade Fair in Toronto. The Show, sponsored by The Yale & Towne Manufacturing Company, Yale Materials Handling Division, is now making a series of one, two and three day stands, primarily in the Middle West.

## GET MORE SPACE FOR SIPMHE EXPO

The demand for exhibit space in the 1953 Industrial Packaging and Materials Handling Exposition at Boston Mechanics Building next October 20-22 has made it necessary to expand the original show area. C. J. Carney, Jr., managing director of the Society of Industrial Packaging and Materials Handling Engineers, sponsors of the exposition, leased extra space after more than 80 percent of the original space had been contracted for.

## K. W. ANNOUNCES WARRANTY PLAN

K. W. Battery Company has announced the new K. W. Warranty Plan, designed to provide industrial truck users constant battery power at a fixed monthly cost. The plan guarantees, with each battery installed, an exchange of battery during the life of the warranty at any time the battery does not meet the predetermined performance level. It also guarantees, in advance, battery power costs, the fixed monthly sum of the battery will cost and guarantees maximum cost of replacement.

## FIFTH ANNUAL ENGINEERING CONFERENCE

The fifth annual Industrial Engineering Conference will be held on the campus of Michigan State College September 14-18. Six workshop groups are being planned to bring the latest and best of industrial engineering to practicing men in industry: beginning motion and time study, advanced motion and time study, materials handling and plant layout, production control, quality control, industrial engineering for small plants. A staff of nearly 40 experts will discuss their specialties with the conference groups, and each workshop will consist of about 25 persons.

## PACKAGING MACHINERY GROUP PLANS MEETING

The program committee for the twenty-first annual meeting of the Packaging Machinery Manufacturers Institute, to be held from September 20 to 23 at Skytop Lodge, Skytop, Pa., was announced by Edwin H. Schmitz, Institute president. W. B. Bronander, Jr., executive vice president of Scandia Manufacturing Company, will be the general meeting chairman. His assisting committee: E. A. Oliver, general manager of Economic Machinery Company, chairman of the business meeting program; John B. Wilson, president of Wright Machinery Company, entertainment chairman; G. Diehl Mateer of G. Diehl Mateer Company, sports chairman; E. J. Abendschein, general manager of Chisholm-Ryder Company of Pennsylvania, reception and fellowship chairman. The Skytop meeting will be attended by executives of member companies and their wives and families.





**EVERY YEAR**  
more and more  
people order  
more and more  
**MONARCHS**  
for Replacements\*

\*Every year, Monarch increases its manufacturing facilities for production of solid industrial tires. In 10 years, those facilities have been expanded 518% to keep up with the demand for solid tires. Since Monarch specializes in solid tires exclusively, you will find most lift truck manufacturers demonstrate their confidence in our experience by equipping their trucks with Monarch Solid Industrial Tires.

When you need new tires for your truck, call in your Lift Truck Dealer. He knows trucks best and he knows the type Monarch tire best suited for your operation.

Monarch Efficiency Tires  
for Electric Trucks. Monarch General Purpose  
for Gas Trucks or where  
extremely severe conditions call  
for a tough tire.



THE  
**MONARCH**  
RUBBER COMPANY

550 LINCOLN PARK • HARTVILLE, OHIO  
7-255 GENERAL MOTORS BLDG., DETROIT 2, MICH.

**SPECIALISTS IN INDUSTRIAL SOLID TIRES AND MOLDED MECHANICAL RUBBER GOODS**

## NEWS, VIEWS. TRENDS

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*Continued*

### **CLARK ANNOUNCES AUTOMATIC TRANSMISSION**

Clark Equipment Co. introduces its newly-developed HYDRATORK DRIVE for fork trucks at a luncheon in Detroit on July 28. This fully automatic transmission will be available for both lighter and heavier truck models as soon as production facilities can be expanded, according to W. E. Schirmer, Clark Vice President. At the luncheon, HYDRATORK-equipped, standard model fork truck was put through its paces under standard load conditions, and designs and operation of the equipment was discussed.

### **BIG JOE MOVES**

Big Joe Manufacturing Company has moved to a new location. The address of the company is now 900 West Jackson Blvd., Chicago 7, and the telephone number is Taylor 9-5650.

### **MICROWAVE CHANNELS TO WORK ON RAILROADS**

Microwave channels, similar to communication bands in television, will soon be working on the railroad, remotely controlling switches, signals and interlockings. Their use in this phase of railroading comes after conclusive tests, the first of which was contributed in the Pittsburgh area in 1946 by the Union Switch & Signal Division of Westinghouse Air Brake Company, with the cooperation of the Radio Corporation of America, Western Union and the Pennsylvania Railroad. The initial application will occur on the 90-mile railroad constructed in Venezuela by the Orinoco Mining Company. The project will combine Union Switch & Signal's centralized traffic control and coded carrier (voice frequency) control systems with transmitters and receivers especially developed by RCA.

### **DODGE OBSERVES 75TH YEAR**

Dodge Manufacturing Corporation of Mishawaka, Indiana, recently celebrated its diamond anniversary and is now in its seventy-sixth year of operation. Festivities included a day-long open house for guests and families of employees, featuring plant and a yard setting in carnival motif. The affair attracted thousands of visitors from Mishawaka, South Bend and a number of more distant cities.

### **PACKAGING TEAM STUDIES NAVY PROBLEMS**

A navy packaging team is on its way to forward military areas to study packaging problems in the field, according to the Office of Naval Material. Navy supply installations in Hawaii, Guam, Japan, Philippines and other outposts will be visited. The team will determine if military supplies are arriving at forward areas adequately packaged, and at the same time will seek evidence of over-packaging. The tour is expected to last about six weeks.

### **REVISED MANUAL ON CONVEYORS READY**

A new and revised edition of "Conveyor Terms and Definitions" is off the press at the Conveyor Equipment Manufacturers Association, according to R. C. Sollenberger, executive vice president. Words used to describe conveyors are given their exact meaning for industrial specifications in this manual, which lists 1500 terms and shows line drawings of more than 80 types of conveyors and parts. Copies are available from the Conveyor Equipment Manufacturers Association, No. 1 Thomas Circle, Washington, D. C., at \$1 per copy, or from members of the association.



You get **EXTRA** advantages with

## LO-HED HOISTS

DESIGNED to operate with top speed and ease . . . built for longer working life . . . Lo-Hed Hoist has cut material handling costs in plants from coast to coast.

And beyond that, Lo-Hed has *extra* features that bring maximum safety and efficiency. Its bottom block, for example, is completely shrouded. On A.C. installations a transformer puts 110 volts instead of line voltage at the push button controls. Its hook is suspended on an oil-impregnated bearing that does away with tangled lines.

Available in five suspension types and in capacity ranges from 500 to 24,000 lbs., Lo-Hed

gives you low headroom, too, for which you pay no premium. Mail the coupon below for complete information . . . it may lead to savings that count up, year after year.

**LO-HED MEANS LOW OVERHEAD**

### AMERICAN ENGINEERING

COMPANY

PHILADELPHIA 25, PENNA.

AE Products are: Taylor and Perfect Spread Stokers, Marine Deck Auxiliaries, Holo-Shaw and Hydramite Fluid Power, Lo-Hed Hoists, Lo-Hed Car Pullers.



**LO-HED CAR PULLER** . . . rugged . . . electrically-driven . . . moves railroad cars on private sidings cheaply and safely . . . cuts demurrage costs . . . Saves money *inside* a plant, too; pulls anything within its capacity that can roll or slide . . . up grades, around corners.



American Engineering Company  
2531 Aramingo Avenue, Philadelphia 25, Pa.

Gentlemen: I am certainly interested in efficiency. Send me full information about ☐ Lo-Hed Hoists . . . ☐ Lo-Hed Car Pullers.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

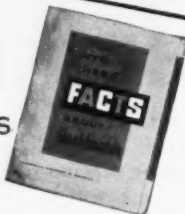
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

LOOKING INTO THE FACTS... LEADS INEVITABLY TO **MAGCOA**



## DO YOU WANT THE FULL, MONEY-**SAVING** *Facts* ABOUT DOCKBOARDS?

THIS NEW  
FACTS FILE GIVES  
THEM TO YOU...



The new Magcoa Facts File is full of facts you ought to have before you invest in a bridgeplate for your loading dock. Here are some of the facts you'll find in your copy—

- The actual costs of dangerous makeshift plates
- What other companies learned... the hard way
- Why sixty multi-plant national companies standardized on Magcoa Dockboards
- What your local Magcoa Representative knows about your dock

You'll find these facts and more in the new Magcoa Facts File. It's based on a study of what smart buyers demand (and get); gives you tips on net costs; talks in dollars and cents, specific facts... from your viewpoint.

Use the handy coupon to get your free copy.

## MAGNESIUM COMPANY OF AMERICA

MATERIALS HANDLING DIV., EAST CHICAGO 1, IND. — Representatives in Principal Cities

### DIVISION OFFICES:

NEW YORK 20,  
30 Rockefeller Plaza  
PHILADELPHIA 18,  
801 Southampton Ave.  
WASHINGTON 5, D. C.,  
Walker Bldg.  
HOUSTON 17,  
7637 Main St.  
LOS ANGELES 24,  
8822 W. 25th St.  
SAN FRANCISCO 4,  
Rosa Bldg.

☐ Please send me the free new Dockboard Facts File

Name & Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City-Zone-State \_\_\_\_\_

Circle No. 78 on Reader Service Card for more information

## news from the SALES FIELD

Lewis-Shepard Products Inc. announced the appointment of **H. Philip Shean** to represent its Master Line of industrial trucks in the Syracuse, N. Y. area. He will be associated there with **Fred Thompson**. Previously, Shean had been L-S representative in northeastern Pennsylvania.



Harnischfeger Corp. has appointed **Arch S. James** as hoist sales engineer in its St. Louis office. He has over 15 years experience in the field behind him and will concentrate his efforts on improving the engineering assistance and service for P & H Hevi-Lift and Zip-Life users in his area.



The New Orleans district office of **Alvey Conveyor Mfg Co.** moved recently to new and larger quarters at 302 Jahncke Bldg., 816 Howard Ave. **Harold L. Block** is the district manager.

A new Field Engineer Section has been announced by **Barber-Greene Co.** to provide on-the-spot factory and engineering assistance to B-G distributors and their customers. Each field engineer was selected on the basis of his engi-



# Westinghouse

saves in excess of  
**\$57,000 per year**  
 by **FORK TRUCK**  
**HANDLING**

● A fleet of fork trucks including Bakers, coupled with intelligent planning and material handling engineering, enables Westinghouse Electric Corporation to cut handling costs more than \$57,000.00 per year at its huge East Pittsburgh works. Savings in which the Baker Trucks participate, include:

- \$12,000.00 warehousing raw materials in the molded materials section
- Another \$12,000.00 handling finished molded products
- \$9,000.00 on one scrap handling operation
- \$7,500 by handling castings on pallets in yard storage
- 100% added storage capacity in molded materials warehouse
- Doubling capacity of drum storage space in yard

These savings were made possible by replacing manual handling and other slow methods with efficient fork-truck unit-load handling. In some instances Westinghouse devised special pallets and containers to achieve greatest speed and efficiency from their versatile Fork Trucks.



Illustrated above is a special stringer pallet which enables Baker Fork Trucks to tier and transport drums four at a time, doubling storage capacity and speeding these operations substantially by eliminating manual methods.



◀ This method of handling scrap saved \$9,000.00 in one year. Driver merely operates controls—the truck does the work.



◀ Handling castings in yard storage on pallets with Fork Trucks saves \$7500.00 per year over former methods—and multiplies storage capacity by tiering.

◀ By palletizing banded materials for fork truck handling, tiering to warehouse ceiling more than doubles storage capacity. This method cuts handling costs \$12,000.00 per year.



Write for

your copy of the "Baker Handling Library" a new portfolio of actual case histories.

**THE BAKER-RAULANG COMPANY**  
 1219 WEST 80th STREET • CLEVELAND 2, OHIO

*The Baker-Lull Corporation, Subsidiary, Minneapolis, Minnesota*  
*Material Handling and Construction Equipment*

Circle No. 15 on Reader Service Card for more information

**Baker**

industrial trucks



# You Can Judge a Machine by the Calibre of its Users!

In every section of the country... In every branch of industry... you will find satisfied owners and operators of UNIT equipment. Surely, such widespread popularity must be deserved. Why not investigate? Write for novel "TV" brochure that depicts the complete Unit line.

## These Prominent Firms Use UNIT Cranes and Shovels

Allis-Chalmers Mfg. Co.  
American Chain & Cable Co.  
Baker Wood Preserving Co.  
Burroughs Adding Machine Co.  
Campbell Soup Company  
Carnegie-Illinois Steel Co.  
Chicago, Milw., St. Paul & Pac. R.R.  
Chrysler Corporation  
Consolidated Vultee Aircraft  
Diamond Match Company  
Dow Chemical Company  
Frigidaire  
General Electric Company  
General Motors (Pontiac Div.)  
Goodyear Tire & Rubber Co.  
Great Lakes Steel Corp.  
International Harvester  
Niagara-Mohawk Power & Light  
North Carolina Pulp & Paper  
Northern Natural Gas Co.  
Oliver J. Olson Shipbuilding  
Packard Motor Car Company  
Pennsylvania Railroad  
Pittsburgh Plate Glass Co.  
R. J. Reynolds Tobacco Co.  
Sacoay Vacuum Oil Company  
Shell Oil Company  
A. O. Smith Corporation  
Universal Pictures, Inc.  
Weyerhaeuser Timber Co.

### For BIG Lifting Jobs

UNIT 1520T mounted on a 3-axle tandem drive crane carrier, designed exclusively for heavy duty truck crane operation. Sturdy, efficient truck engine provides fast mobility. A separate engine in upper structure furnishes dependable power for lifting.



UNIT 357 Self-propelled Mobile Crane with Magnet Lifting Scrap Iron.



UNIT 357 with Clamshell for Lifting Bulk Materials.



UNIT 357 Crane used for a Typical Industrial Lifting Job.

## UNIT CRANE & SHOVEL CORP.

6531 W. Burnham Street • Milwaukee 14, Wisconsin, U. S. A.



Available in Crawler and Mobile Models... 1/2 Yard excavators and 1/2 ton cranes up to 20 tons lifting capacities... Fully convertible to all attachments.

SHOVELS • DRAGLINES • CLAMSHELLS • CRANES • TRENCHES • MAGNETS

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## SALES FIELD

Continued

neering background and experience in the construction machinery industry. The new group includes (front row, left to right) James Rice, Willis H. Brett, Kent Shell and Richard Graffahna. (Back row, left to right) Richard Jouannet, Edward Curtin, Ralph Andersen and Robert Hoppenrath.

The Frank G. Hough Co. has appointed Kenneth B. Larkin



K. B. Larkin

as district representative in its sales territory comprising Washington, Oregon, Idaho; British Columbia, Alberta and Saskatchewan, Canada. He replaces H. E. Thomas, who has been promoted to the midwest territory including Illinois, Michigan, Indiana, Ohio, Kentucky and eastern Missouri. Larkin is a civil engineer and formerly was associated with the Nelson Equipment Co., a Hough distributor in the northwest region.

Clark Equipment Co. has revamped and expanded its dealer organization in the midwest and west coast to handle its newly-acquired Ross straddle truck and fork truck lines. Clark acquired the Ross Carrier Co. this past May. Under the new dealer plan which went into effect July 1, most midwest and west coast dealers will add the Ross products to their regular sales and service activities.

The Pittsburgh Steel Products Co. announces a recent change of location for its New York district sales offices. The branch now is located in the Chrysler Building at 42nd and Lexington Ave.

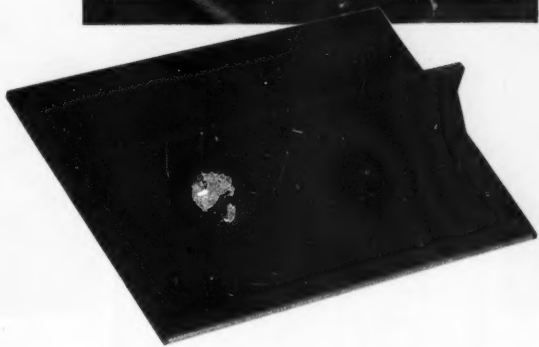
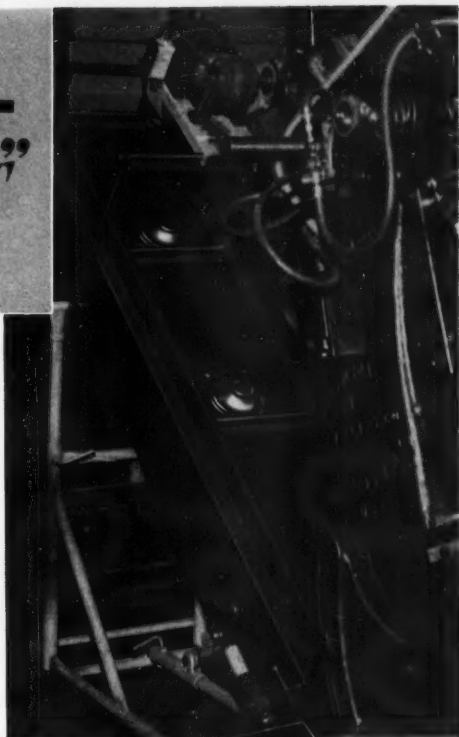
# GOODALL "SKY KLEET"

## Built-in RUBBER CLEATS for Incline Conveyor Belting...

If the lifting of small parts, stampings, minerals, chemicals, produce or any similar items on fixed or portable incline conveyors is your problem . . . "Sky-Kleet" is your answer!

"Sky-Kleet" Rubber Cleats are *molded* to form an integral part of the belt . . . no possibility of tearing loose or breaking, as so often occurs with old-style riveted- or bolted-on cleats. The natural resiliency of the rubber compensates for uneven or improper loading.

"Sky-Kleet" Molded Rubber Cleats are available on any standard Goodall Belting construction or on special constructions to meet specific requirements. Cleats can be furnished any distance apart; also split (rather than full width) to accommodate idlers on the return.



Integrally molded "Sky-Kleet" Rubber Cleats eliminate the necessity for constant supervision and repair by maintenance crews. Contact our nearest branch for further details and prices.

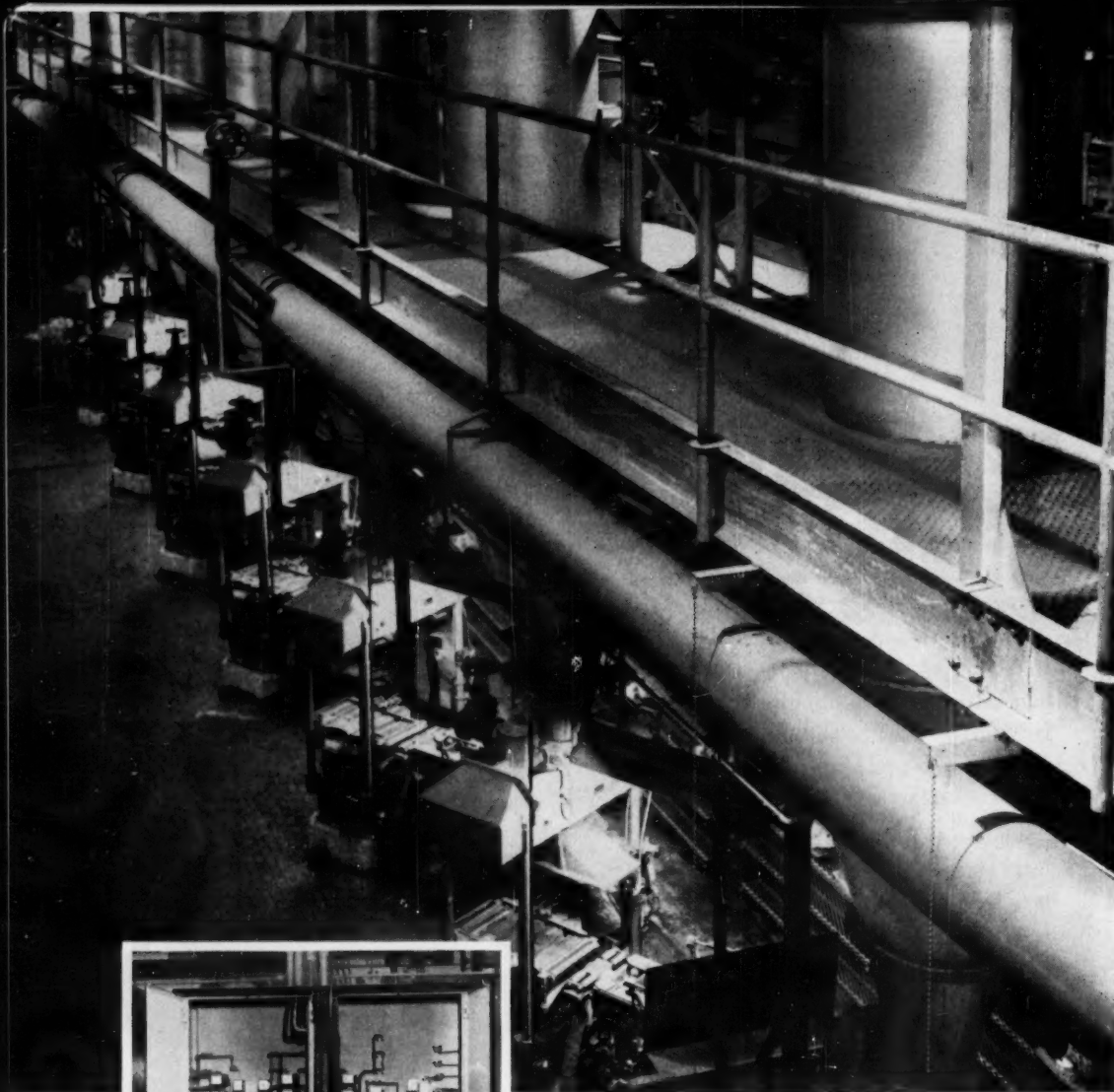


## GOODALL RUBBER COMPANY

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.

Branches: Philadelphia • New York • Boston • Pittsburgh • Indianapolis • Chicago • Detroit • St. Paul  
Los Angeles • San Francisco • Seattle • Spokane • Portland • Salt Lake City • Denver  
Houston • Goodall Rubber Company of Canada, Ltd., Toronto • Distributors in Other Principal Cities

Circle No. 7 on Reader Service Card for more information



**30 tons of sand per hour are fed by a pneumatic system to storage bins over machines;**

**Wide opening rear doors on the master control board make the plant electrician's job easier.**



## From this control board, 1 man measures, mixes, moves sand for casting molds

One man, alone at this Westinghouse control board, regulates the flow of sand used in making cores for cylinder blocks at the Ford plant near Cleveland. Watching the lighted board, he delivers the sand, through pipelines, into storage bins above any one of 38 core-blowing machines.

### **Instant control from one location**

Westinghouse has put the control of an entire sand distribution system in the hands of one competent man and his electronic partner. The operator, with total responsibility, sends sand where the panel tells him it's needed. Ford's control board is conveniently located in an out-of-the-way place. Westinghouse could put *your* control board, just as satisfactorily, in your office.

### **Six assistants—not on the payroll**

The master board flashes orders to six unattended Westinghouse Control Centers scattered through-

out the plant. Each control center has micro-flex counters and timers which regulate the mixing machinery. Sand, bond, oil and water, in precise proportion, are whipped into one-ton batches. Then Crane Company's Turbo-Drive pneumatic sand distribution system blows the prepared batch of sand through 4" piping to storage bins over the core-blower machines—all in 70 seconds.

### **Next time call Westinghouse**

This Westinghouse control system has netted Ford a saving in man power and in maintenance and production costs. Cylinder block production is up and still climbing. Perhaps Westinghouse equipment, designed for your job, and Westinghouse engineering help, from first plans to final tests, could improve your operation, too. Your nearby Westinghouse representative will be glad to talk to you. Call him early in the planning stage. Westinghouse Electric Corporation, Pittsburgh 30, Pennsylvania.


J-94991

YOU CAN BE SURE...IF IT'S  
**Westinghouse**



Circle No. 126 on Reader Service Card for more information

This  
*Scottie*  
**TURNS OVER**  
**ON ITS SIDE**



While Riding On An  
**ALVEY**  
Conveyor

It is not a difficult trick to turn a package over while enroute, but it must be correctly timed and accomplished gently to guard against abrasion or damage due to impact.

Alvey engineers incorporated this and other motions into many ingenious layouts to provide certain desired results.

If you have a package handling problem that deserves particular study and attention, have an Alvey engineer work with your technical staff.

# ALVEY

**ALVEY CONVEYOR MFG. CO.**  
9299 Olive St. Rd., St. Louis 24, Missouri  
Branch offices in principal cities

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## association and society NEWS

● **Claibourne T. Cackley**, for the past 5 years technical director of the National Wooden Box Association, died June 18 at the age of 48. During the past two years he served as secretary of the National Wooden Pallet Manufacturers Association also.



**C. T. Cackley**

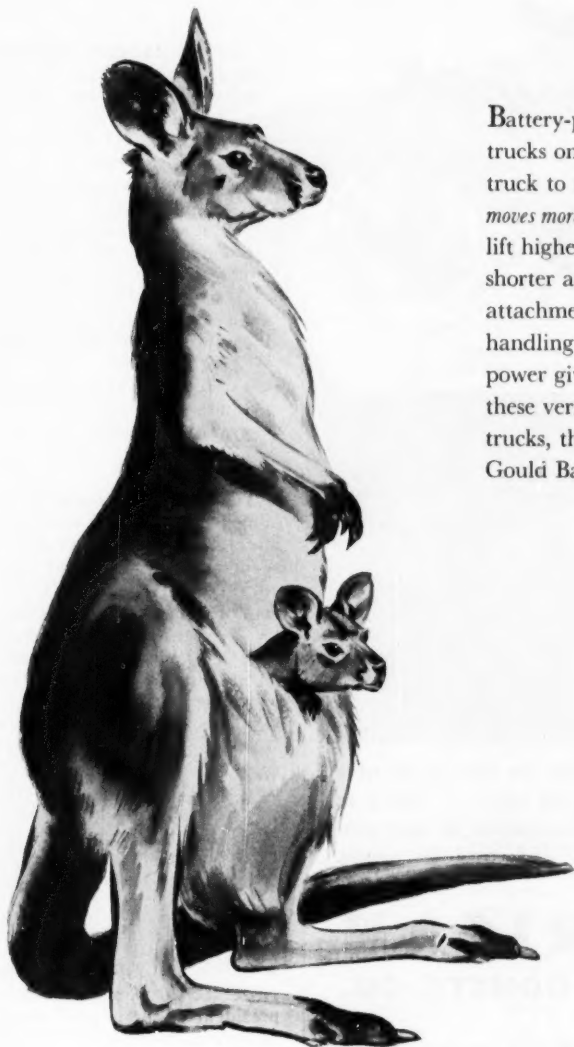
● An enthusiastic group of members convened at Chatham Bars Inn, Cape Cod, Mass., recently for the summer meeting of the Caster and Floor Truck Manufacturers' Association. Howard Palmer, president of the Material Handling Institute and sales manager for Lewis Shepard Products Inc., gave the main address entitled, "The Future Of The Material Handling Industry." Another highlight of the meeting was a discussion headed by Lieutenant W. R. Hamilton on Air Force specifications for standardization of products within the industry.

● **Announcement has been made** of the forthcoming annual Montreal Material Handling Show Nov. 9-13. Approximately 75,000 square feet of floor space will be available for exhibits, according to L. J. Stock, president of the Montreal Chapter of the American Material Handling Society, sponsors of the show.

The Montreal Tool and Equipment show will be held in conjunction with the material handling exposition. Last year's show drew an attendance of 23,000. Management of

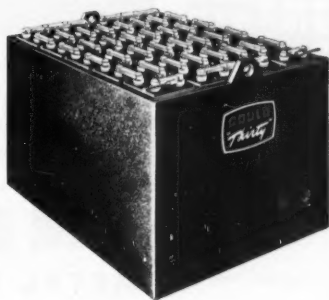


# EXTRA LOAD-CARRYING CAPACITY THANKS TO BATTERY POWER!



Battery-power keeps modern industrial trucks on the move . . . enables each truck to make *extra* trips per shift . . . *moves more tons at lower cost.* Today's trucks lift higher, maneuver faster, turn shorter and accept a wider range of attachments to meet today's materials handling requirements. Gould battery power gives you extra capacity for these versatile units. For industrial trucks, there's *no* power like Gould Battery power.

Specify  
THE GOULD "THIRTY"—  
America's Finest  
Industrial Truck Battery



## GOULD INDUSTRIAL BATTERIES

GOULD-NATIONAL BATTERIES, INC., TRENTON 7, N. J.

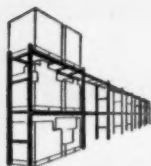
Always Use Gould-National Automobile and Truck Batteries

©1953 Gould-National Batteries, Inc.

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# When you choose your PALLET RACK

## Choose American



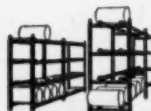
Standard Pallet Racks



Adjustable Pallet Racks



Skid Racks



Drum & Barrel Racks



Tool & Die Racks



Coil Racks & Tying Racks

here's an exclusive  
American feature



American Pallet Rack Installation  
S. S. Kresge Co. Warehouse, Fort Wayne, Ind.



American Tubular Racks are used in all types of businesses, large and small . . . there's an American Tubular Rack designed to meet practically every storage need. Send for catalog.

## AMERICAN METAL PRODUCTS CO.

### STORAGE RACK DIVISION

5959 Linsdale • Detroit 4, Michigan

Gentlemen: Send me more information about American Racks.

Name   
Company   
Address   
City  Zone  State

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## ASSOCIATIONS

*Continued*

the show is in the hands of E. M. Wilcox Ltd., 4585 Sherbrooke St. West, Montreal, or 19 Melinda St., Toronto.

• The Philadelphia regional division of the Society of Industrial Packaging and Material Handling Engineers elected new officers at its final meeting of the current year. Named president was Joseph L. Krager Jr., Radio Corporation of America; executive vice president is W. W. DeWitt, Rohm & Haas Co.; vice presidents are J. C. Fleck, Packaging Service Corp., and Charles H. Black, National Metal Edge Box Co.; treasurer is Frank D. Edwards, Potts-Farrington Co., and secretary is R. F. Tettemer, H. G. Hanline Co.

• The Detroit Material Handling Section of the American Society of Mechanical Engineers elected its 1953-54 officers recently and has announced its opening meeting for the year on Sept. 8. Francis Norton is scheduled to speak on "Tackling Today's Material Handling Problems." The newly elected officers are John Boyko, chairman; Randall Crabb, vice chairman; Warren Anderson, secretary-treasurer; Henry Castle, publicity; John McDougall, membership; Frank Henderson, greetings chairman, and Don Kelsey, ex-officio.

• Carl Miller, of Westinghouse Electric Corp., was elected president of the newly formed Maryland division of the Society of Industrial Packaging and Material Handling Engineers. The group was welcomed into the national body by John Mount, eastern regional director of SIPMHE. Speaker at the meeting was Stanley Margerum, sales manager of the Modern Dunnage Mfg. Co.

# GET THIS NEW BUDA FACTS BOOK NOW!



Here is a gold mine of information for everyone concerned with efficient materials handling at the lowest possible cost! 36 pages of vital information about the most functionally designed fork lift trucks. Facts and figures that serve as standards of comparison. Data that means faster, less costly materials handling in your plant.

It shows how BUDA easily maneuvers in tight corners, lifting and placing cargo with a feather touch... how BUDA strips to the frame in 22 minutes, saving hours of down-time... how the BUDA clutch is pulled in only 30 minutes... how BUDA Diesel and gasoline engines out-work other engines by thousands of hours... how BUDA trucks are on the line all the time!

See that your Materials Handling Men get this profitable, new data book by writing today to:

## BUDA

THE BUDA COMPANY

Harvey, Illinois

*The Line With ALL 3 For Diversified Handling.*



Chore Boys



Industrial Tractors



Fork Lift Trucks

Diesel and Gasoline Engines, Lifting Jacks, Railroad Equipment,  
Earth Drills, Materials Handling Equipment

Circle No. 27 on Reader Service Card for more information.

**Stack high and reach far?  
Handle large or small loads?  
Do construction and maintenance?  
Pick up and transport any material?  
Push or pull cars or trailers?  
Work in any weather...on any surface?**

**Can Your  
Yard Handling  
Equipment  
DO ALL  
these JOBS?**

## **YOU CAN WITH A VERSATILE LORAIN SELF-PROPELLED CRANE**

A Lorain Self-Propelled Crane is practically a yard crew in itself. Just look at the varied jobs it can perform. Where other yard material handling equipment is limited, Lorain Self-Propelled Cranes go all the way — with a saving in time and money on every use.

There are many reasons why more and more plants are putting Lorain crane power on rubber to work on their material handling jobs. Lorains offer a selection of capacities up to 45 tons. Interchangeable front ends, combined with more than 16 lifting and loading attachments make them one of the most versatile material handling tools money can buy. Rubber-tire mountings add the big advantage of speed and mobility. Their automotive-type air power steering and air brakes contribute to maneuverability and safety.

Thew-Lorain Distributors, located in 146 cities, can provide your plant with vital facts and figures about cost-cutting Lorain performance.

**THE THEW SHOVEL CO., LORAIN, OHIO**



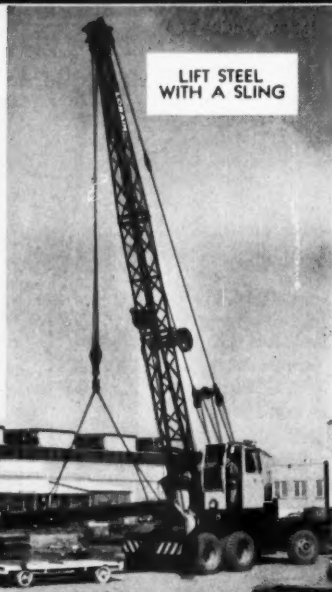
**HANDLE LOOSE MATERIAL WITH CLAMSHELL**



**LOAD CASTINGS WITH MAGNET**



**LIFT STEEL  
WITH A SLING**



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AUGUST, 1953 • FLOW



There's no  
stopping Hartley...  
since he discovered  
Heppenstall Tongs

There's no limit to the  
range of jobs that

**HEPPENSTALL SAFE-T-TONGS**  
handle quickly, safely, economically

Whatever your handling job requires—regardless of shapes, weights, or sizes—a Heppenstall Safe-T-Tong engineered specifically to your needs will help you speed materials handling operations with greater efficiency and safety. Call Heppenstall *now*. Obtain complete information and technical assistance. Heppenstall Company, Pittsburgh 1, Pa. Sales offices in principal cities.

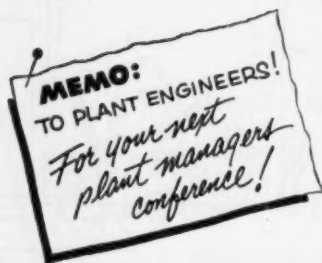


**Heppenstall**

... TONGS FOR EVERY GRABBING PROBLEM

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# RADIO

## on plant patrol!



### Invite The G-E CAS\* Man To Call!

Take advantage of General Electric experience in industrial radio communication! Call our local office today or write: General Electric Co., Section 13283, Electronics Park, Syracuse, N. Y.

\*Communications Advisory Service

### Instant Contact Via G-E 2-Way Radio Radically Increases Plant Security!

**T**HE protection of your interests is the sole reason for a plant patrol system—be it a walking guard or vehicle spot check. Realizing its importance you must appreciate the radically new effectiveness . . . the huge saving in time and expense with G-E radio to co-ordinate patrol reports. Add this "extra" value to plant radio performance as a fire fighting system . . . a faster service facility . . . and the best way to increase production rates. Each of these reasons warrants a budget allocation for radio . . . collectively they demand it!

Take a tip from the many companies that have benefited from G-E's industrial communications experience. You'll discover G-E equipment offers not only reliable performance but built-in quality of construction to assure minimum maintenance . . . your complete satisfaction!

**GENERAL**  **ELECTRIC**

Circle No. 53 on Reader Service Card for more information

# Have You Explored All the Ways To Save Money With a Fork Truck?



**WOULDN'T IT BE GOOD BUSINESS** to know all the ways to save money with your Clark truck? It's the function of Clark attachments to transform your truck into a machine of many uses. Rather than let a truck stand idle for "lack of work," you can switch from one attachment to another in 10-20 minutes—go from one job to another, from partial idleness to full-time usefulness.

For example, why use manual labor to handle scrap, coal, sand or even cement? You'll do the job faster, more economically with one of Clark's shovel attachments. Why manhandle cartons, crates, rolls, drums, bales? Simply switch to the proper Clark attachment—there's one designed to handle practically any product or material. And for the relatively few cases where a standard attachment won't do the job, it's more than likely that our Custom Truck Department can design and build special equipment to solve the problem (—and inquiries are invited).

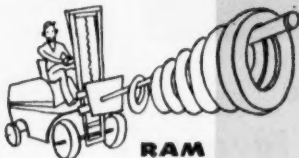
Perhaps you're hesitating to buy a fork truck because your principal handling job requires only part-time truck application. If that's the case, don't fail to look into this attachments angle. Chances are we've got, or can devise, one or more attachments that will enable you to utilize a fork truck profitably, all day long.

Your local Clark dealer (listed in the Yellow Pages of your phone book) will be glad to help you plan ways to multiply the usefulness of your Clark trucks and POWERWORKER hand trucks. Or if you prefer to use the coupon, we'll gladly send a brochure describing the Clark line of attachments.

**CARTON CLAMP**



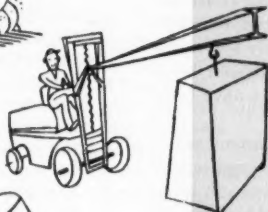
**RAM**



**SHOVEL**



**CRANE**



**ROTATING ROLL CLAMP**



## CLARK ELECTRIC, GAS, DIESEL, L.P. GAS AND POWERED HAND TRUCKS • INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK 13, MICHIGAN

Please send: ☐ Attachments Catalog ☐ Driver Training Movie  
☐ Have representative call

Name \_\_\_\_\_

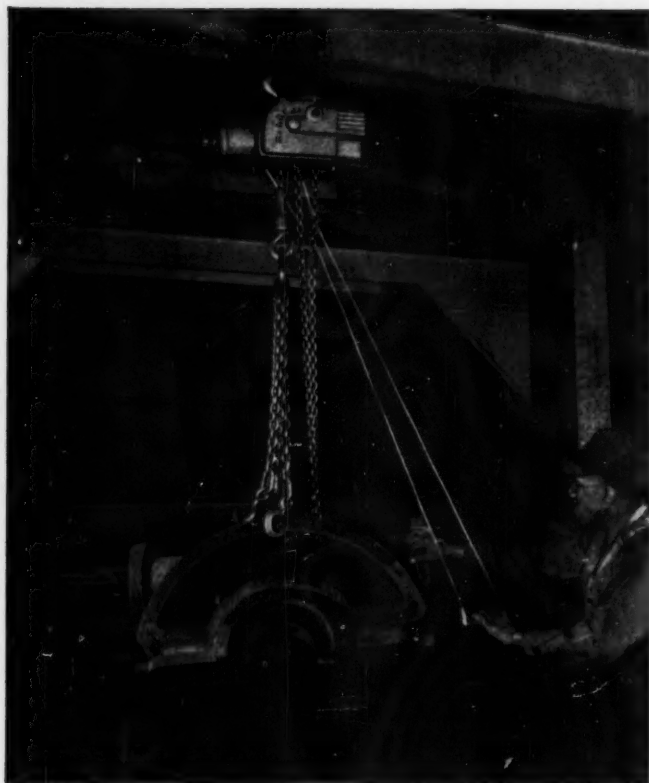
Firm Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

ALL INFORMATION REQUESTED SUBJECT MUST BE CHECKED OFF BY MAILING OFFICE

Circle No. 31 on Reader Service Card for more information



## BEARCAT Hoists give round-the-clock service in foundry



Even though used 24 hours a day, with many stops and starts, and under conditions of intense heat, abrasive dust and moisture, the Bearcat Hoist has given exceptional service in this steel foundry. Maintenance costs have been relatively low, operating efficiency high. Only minor repairs have been made in the four years Bearcats have been in operation here.

There's a Bearcat for your applications too—six models, covering speeds from 6 to 50 feet per minute and capacities from 170 to 4000 pounds, according to motor size and hook speed. They all feature main housing and gear cover of high tensile aluminum alloy; high efficiency precision gearing for speed reduction; oval link hoist chain, flexible in all directions; two brakes for maximum safety; antifriction bearings throughout.

Consult your local classified telephone directory under "Hoists" for the name of your nearest Harrington distributor or write us for literature.

## HARRINGTON PEERLESS HOISTS

THE HARRINGTON COMPANY, 1638 W. Callowhill St., Phila. 30, Pa. • Since 1876

Circle No. 62 on Reader Service Card for more information



... at Elwell-Parker Electric Company.

The appointment of **Lee Calvin Hopper** as advertising manager has been announced by **Sheldon K. Towson**, company president. Additional duties will include supervision of export sales activities. He succeeds **C. B. Cook** who retired recently.



**L. C. Hopper**

... at American Chain & Cable Company.

**Henry Ervin** has been elected vice president and director of sales over all 16 divisions of the company. He has been with the firm since 1937 and for the past two years has been administrator of general sales. **Harry Williams** also has been elected a vice president of the company with his headquarters in Detroit. He joined the company in 1927 and has been sales manager of the automotive and aircraft division in Detroit.



**Henry Ervin**

... at B. F. Goodrich Co.

Organization of two major divisions has been announced by **John L. Collyer**, president. **Arthur Kelly**, a vice president, has been named president of the Goodrich Tire and Equipment Division. **Clyde O. De-**

# Acme Steel Strapping Insures S.A. *(Safe Arrival)*

**Strapped shipping cartons pass Maytag Co. torture tests**



**BOUNCED AND BATTERED.** Acme Steel Strapping holds securely as fibreboard shipping carton is vibrated and then butted on each side and bottom in Maytag Company "torture chamber."

The Maytag Company of Newton, Iowa, insures S.A. (Safe Arrival) of all its automatic washers by using Acme Steel Strapping both to seal fibreboard shipping cartons, and then to anchor those cartons securely in freight cars.

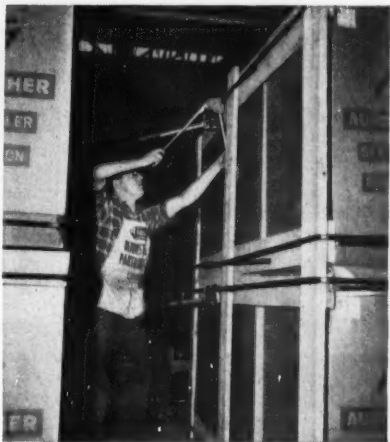
The strapped carton method was adopted only after torture tests proved it superior to other methods.

An added advantage is that packing the Maytag Automatic with Acme Steel Strapping takes less than half as much manpower as a similar Maytag operation employing previous packing methods.

If you have a packaging problem, chances are Acme Steel Strapping or Acme Steel Stitching Wire methods can provide just the solution you need. Telephone your Acme Steel representative, or write Acme Steel Products Div., Dept. F83, Acme Steel Company, 2840 Archer Ave., Chicago 8, Illinois.



**MINIMUM MANPOWER.** Top and bottom caps on carton containing Maytag automatic washer are each secured by one turn of  $\frac{1}{2}$ -in. Acme Steel Strapping. Straps are tensioned by push-button operated Acme Steel pneumatic stretcher.



**FINAL STEP.** After strapped cartons move speedily and safely through packaging department, they are loaded into freight cars and quickly anchored with Acme Steel Strapping.

**ACME  
STEEL**

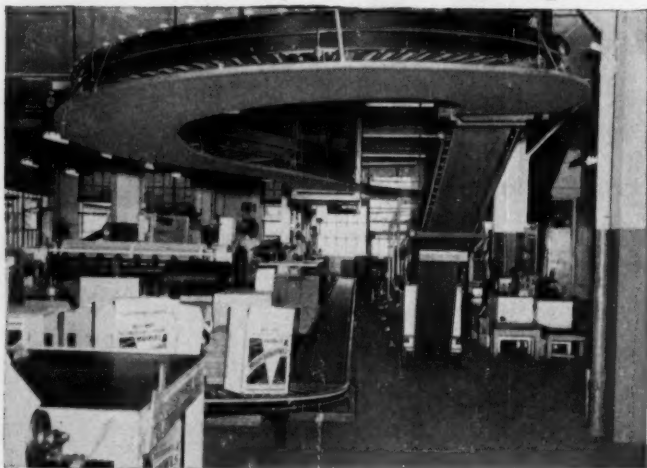
**STRAP IT... STITCH IT... SHIP IT... SAFELY!**

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Start With Any One of These

# FOUR WAYS

To Cut  
Your Handling Costs



## 1 WITH ROLLER OR BELT CONVEYORS

—Wherever packages, parts, or units have to be handled—do it faster, better, cheaper, with Standard roller or belt conveyors, power or gravity. Standard also builds slat, chain, wheel, or pushbar conveyors to fit your needs.



## 2 with a HANDIBELT

—a small, light, compact, easily portable and maneuverable conveyor unit that stacks, loads, unloads cases, cartons, packages up to 135 lbs. in weight. Can be used inclined, declined or horizontal. Electric motor operated.



## 3 with SPIRAL CHUTES

—effective time, work and money savers lowering pieces, parts, packages floor to floor. Scientifically designed and properly pitched—available in many types and sizes. Cost nothing to operate.

## 4 with PNEUMATIC TUBE SYSTEMS

—provide swift, sure, safe transportation of messages, documents, blueprints, samples, small parts, money; cylindrical or oval tubes 1½ inch upward with dispatching and receiving terminals for complete systems to meet your needs. Write for special bulletin SPT.

STANDARD CONVEYOR COMPANY  
North St. Paul 9, Minn.  
Sales and Service in Principal Cities

**Standard**  
GRAVITY & POWER  
CONVEYORS



Write for Standard's general Catalog No. FL-83. Tell us what you want to handle or name equipment on which you want more information.

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## MEN IN THE NEWS

*Continued*

Long has been named president of the Goodrich Industrial Products Division. He formerly was general sales manager of that division.

... at Acme Steel Co.

William C. Fork, vice president and production consultant, holds the distinction of having the longest record of service with the company. He recently completed 45 years. He joined Acme in 1908 at the age of 18 and is the inventor of the rotary method of making corrugated fasteners for joining wood.



W. C. Fork

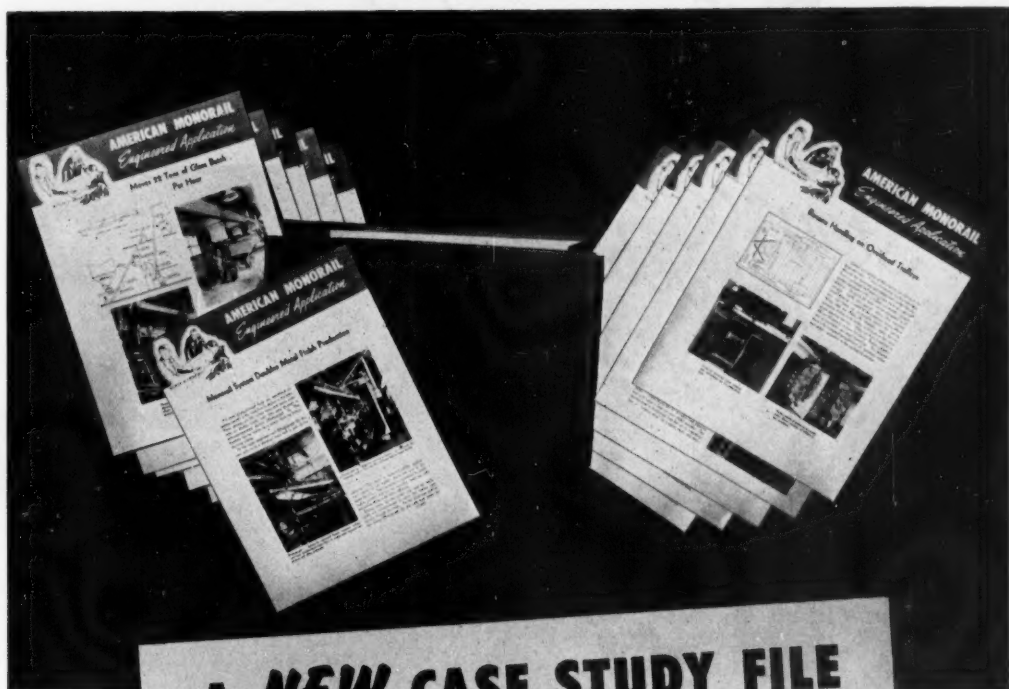
... at Bassick Company

William K. Meyers, for many years Chicago regional sales manager, has been elected vice president, according to George L. Meyer Jr., president of Bassick and vice president of Stewart Warner Corp., its parent company. Meyers succeeds Walter F. Herold, who has been named a vice president of the parent company.

... at Brooks & Perkins Inc.

Numerous appointments have marked the expansion program at Brooks & Perkins. Frederick W. Seitz, who has been a director and secretary of the firm for the past 10 years, now is secretary-treasurer. Charles D. Smith becomes works manager of the mill division. He joined B & P from U. S. Steel Corp. where he was a rolling mill superintendent. Edward H. Perkins comes to the firm as manager of the newly established commercial division. He formerly was a sales engineer for Alcoa.





## FOR LOW COST HANDLING

Here's a brand new case study file which contains the first of a continuing series of case studies covering many successful American MonoRail installations.

Check your handling problems against these "Engineered Applications" of American MonoRail systems.

Send coupon for original file. Future studies will reach you as published.

THE **AMERICAN MONORAIL** COMPANY

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The American MonoRail Co.  
13129 Athens Ave., Cleveland 7, Ohio  
Please send your Case Study File.

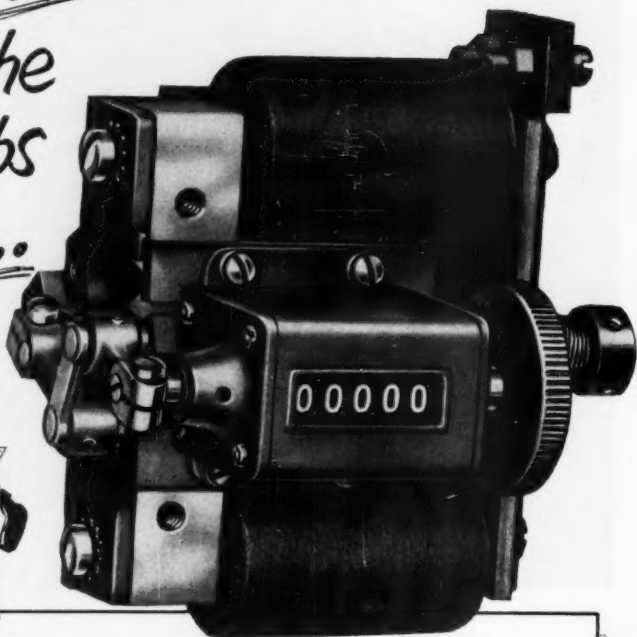
Name

Title

(Please attach to, or write on  
your business letterhead)

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*This  
Electrical Reporter  
Stays on the  
Tough Jobs  
Longer...*



Added Evidence  
that

## Everyone Can Count on VEEDER-ROOT

Compact and rugged . . . this electrically operated reset counter is specially designed for tough jobs that demand longer counter life.

Here's another instance of the *infinite applicability* of Veeder-Root Countrol — electrical, mechanical or manual. And here's another instance, too, of the endless resourcefulness of Veeder-Root engineering, and the ability to design a complete

counting package that fits the job fully and exactly. Now . . . what's your problem?

### VEEDER-ROOT INCORPORATED

"The Name That Counts"

HARTFORD 2, CONNECTICUT

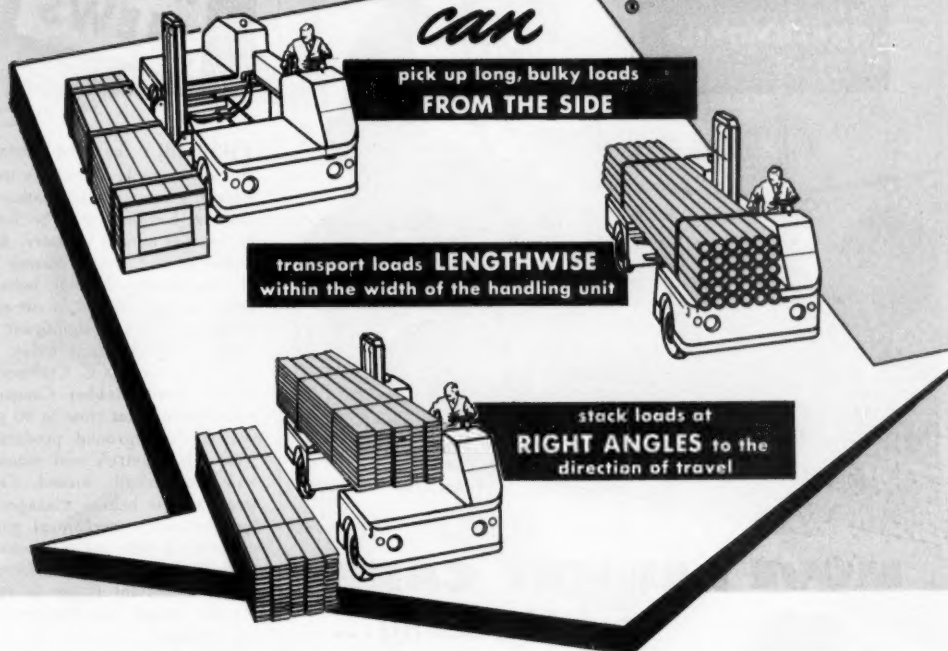
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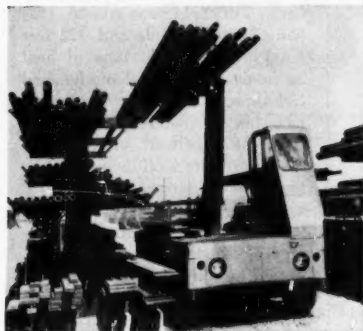
Offices and Agents in Principal Cities



# Only Traveloader can



*... and do all 3 with ONE MACHINE and ONE OPERATOR!*



An ideal combination for efficient yard storage of pipe, bar stock, long steel shapes, etc.—Traveloader and "Christmas tree" racks

Here is an entirely new approach to mechanized handling of big, bulky, awkward or long loads. By combining side-loading fork lift and pneumatic tired carrier in a single machine, TRAVELOADER answers many problems that defy solution with any other equipment.

**TRAVELOADER LOADS FROM THE SIDE.** You simply drive beside the load, pick it up and move on in the same straight line. No time wasted in maneuvering or backing up. Operates easily in 10 ft. aisles with loads of any length.

**TRAVELOADER CARRIES LOADS LENGTHWISE.** Any length and any width up to 5 ft. rides securely on the truck deck—within the width of the unit. Narrow roadways or doors and low ceilings present no problem. Weight is distributed equally over four wheels. Travels safely at speeds up to 30 MPH.

**TRAVELOADER UNLOADS OR STACKS AT RIGHT ANGLES TO TRAVEL DIRECTION.** Safely tiers to heights of 12 ft. alongside narrow aisles. Increases capacity of storage areas and eliminates need for additional equipment or personnel. One man does it all!

*write for*

descriptive bulletin containing action photographs, construction details and specifications.

**THE BAKER-RAULANG COMPANY**  
1219 WEST 80th STREET • CLEVELAND 2, OHIO

The Baker-Lull Corporation, Subsidiary, Minneapolis, Minnesota  
Material Handling and Construction Equipment

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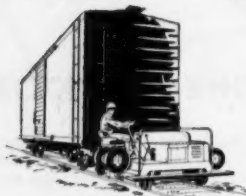
**Baker**

**Industrial trucks**



Road to Track in 30 Seconds!

## MOVE RAILWAY CARS quickly, easily ... at low cost!



Moves Box Cars, Tank Cars, Gondolas  
Flat and Hopper Cars!

Get fast, flexible lower cost car moving with the Whiting Trackmobile! It's always ready for spotting, switching or hauling. It travels on road or track, changes from one to the other in half a minute, moves from job to job without delay. The Trackmobile requires only one operator, handles easily with automotive type controls, and employs a special hydraulic jacking action on the mated couplers to develop a maximum draw-bar pull of 8400 pounds! It frees larger locomotives for other tasks, helps reduce work crew waiting time, cuts demurrage and outside switching costs . . . keeps cars, materials and men on the move! Get complete information today!

**WHITING CORPORATION**  
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Other Whiting Equipment to Speed  
Handling—Overhead Cranes, Trambeam  
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Electric Chain Hoists.

**PROVED ON THE JOB!** "Reports From the  
Field on Trackmobile Savings and  
Advantages" shows actual Trackmobile  
dollar benefits . . . ask for your copy today!



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## HIGHLIGHTS of the month's NEWS

**P**ROBABLY the most outstanding example of today's trend toward greater mechanization in material handling may be found in the coal mining industry. As a matter of fact, the increasing use of heavy-duty conveyor belts to speed production and to cut costs is among the most significant advances in coal mining today, according to George C. Crabtree of United States Rubber Company.

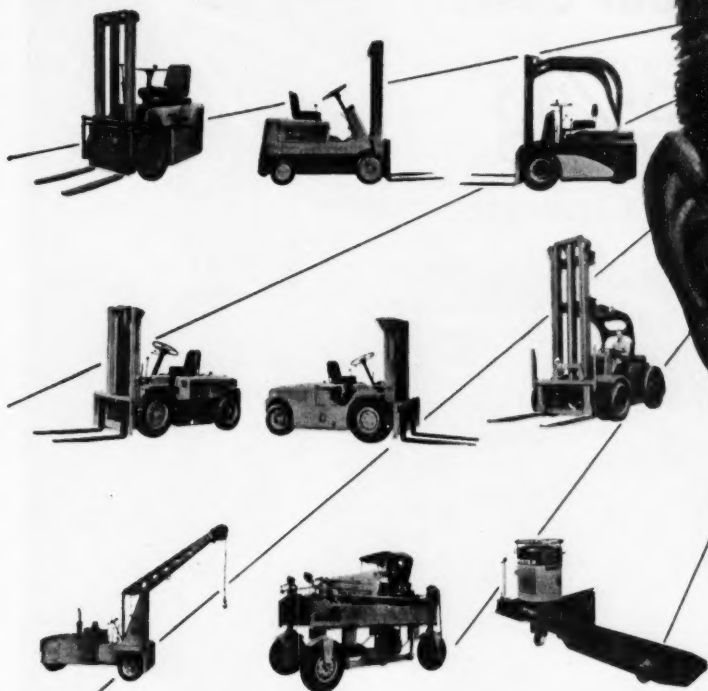
Estimating that close to 90 percent of underground production from this country's coal mines is now mechanically loaded, Crabtree (who is belting manager of his company's mechanical goods division) points out that conveyor belts have become a tremendously important factor in rushing this output from the seams to the surface.

To back up his contention, he points out that one of his company's belts can unload a full carload of coal in one minute. This belt, 72 inches wide and 942 feet long, handles 3000 tons of coal an hour. Adoption of mechanized techniques, Crabtree explained, has slashed hand-loaded output from 58.5 percent of the total U. S. coal production in 1940 to less than 22 percent in 1951.

Furthermore, the number of long-distance installations is increasing, and coal is being transported by conveyor over far greater distances than ever before. For example, one mine in Pennsylvania is using a system of belts to cart coal four and one-half miles from loading zone to tipple.

Even with these steadily-lengthening installations, says Crabtree, the savings have proved substantial. And now, the added advantages derived from the use of synthetic fibers in conveyor belting have stimulated the demand for additional belt haulage systems even more.

**NEW PROFIT-MAKING MATERIALS HANDLING IDEAS**



# from **HYSTER** one of the oldest names in materials handling

**Wherever materials are moved—you'll find Hyster on the job...reducing handling costs by as much as 75%!**

Progressive industry leaders everywhere depend upon Hyster Dealers for the NEW profit-building IDEAS in their own particular industry. Because of their everyday contact with all industries, Hyster Dealers are in an advantageous position to originate or pass on these ideas...ideas that so often have changed profit-eating into profit-making situations...ideas that can help you to spot and stop profit leaks in your business!

Hyster—the most complete line of industrial trucks on the market—is brought to you by one of the world's most efficient dealer organizations. Over 300 Hyster Dealers all over the world will be glad to offer you the recommended materials handling

practices in your industry—plus rentals, parts and field service. They also offer recommendations on the use of over 100 attachments which enable your Hyster Lift Truck to handle efficiently almost any type of load—whether it be in the form of bales, bags, bricks, bottles, bundles, boxes, or barrels! Take your first step to higher profits today by calling your Hyster Dealer...or write for Catalog 1258 on Hyster Lift Trucks and Catalog 1266 on Hyster Attachments to:

## **HYSTER COMPANY**

2931 N. E. Clackamas St. .... Portland 8, Oregon  
1031 Myers Street. .... Danville, Illinois



**Be Sure to Call HYSTER Before You Buy ANY Lift Truck!**

**HYSTER COMPANY**—Four Factories: Portland, Oregon; Danville, Illinois; Peoria, Illinois; Nijmegen, The Netherlands

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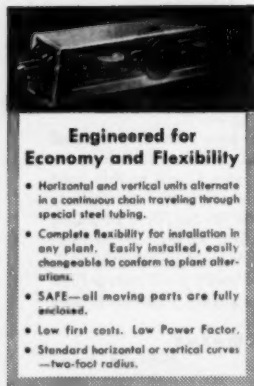
**THERE'S PROFIT IN  
HYSTER  
POWER**



# Save Space! Cut Costs!

## with R-W "Zig-Zag"®

### Continuous Power Conveyor



#### Engineered for Economy and Flexibility

- Horizontal and vertical units alternate in a continuous chain traveling through special steel tubing.
- Complete flexibility for installation in any plant. Easily installed, easily changeable to conform to plant alterations.
- SAFE—all moving parts are fully enclosed.
- Low first costs. Low Power Factor.
- Standard horizontal or vertical curves—two-foot radius.

Richards-Wilcox ZIG-ZAG Continuous Power Conveyors are the last word in materials handling efficiency. Products of many sizes and shapes are carried at various speeds, smoothly and safely. Loss through handling mishaps is reduced to a minimum. And the overhead installation releases valuable space for other uses—increases the efficiency of the plant many times.

ZIG-ZAG—a steel, tube-like track through which travels a specially constructed motor-driven chain—will

carry unit loads up to 125 pounds at speeds ranging from 1 inch to 60 feet per minute. It's designed to go up and down, in and around "like water through a pipe." And ZIG-ZAG is flexible, too—if changes or relocation are required you can take it down here and put it up there, and in most cases, *use all the parts!*

*Learn how patented ZIG-ZAG can save space and cut production costs. Send today for details—or better yet, have an R-W engineer consult with you at no obligation.*

1880



1953

SLIDING DOOR HANGERS & TRACK • FIRE DOORS & FIXTURES • GARAGE DOORS & EQUIPMENT • INDUSTRIAL CONVEYORS & CRANES • SCHOOL WARDROBES & PARTITIONS • ELEVATOR DOOR OPERATING EQUIPMENT

## Richards-Wilcox Mfg. Co.

"A HANGER FOR ANY DOOR THAT SLIDES"

420 THIRD STREET, AURORA, ILLINOIS

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AUGUST, 1953 • FLOW

for fast operation  
in congested areas and  
narrow aisles

# aisle saver<sup>®</sup>

## FORK TRUCKS

**WRITE FOR BULLETIN 5210**  
This informative, illustrated  
bulletin describes the com-  
plete aisle saver line with  
load and clearance charts,  
lifting capacities and other  
data. Every plant manager  
should have a copy.



**AISLE SAVER IS JOB ENGINEERED** to operate efficiently in congested areas; short, compact construction permits right angle stacking in extremely narrow aisles... a space-saving feature.

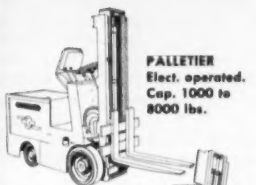
**ADDITIONAL ADVANTAGES:** Stand-up end control permits operator to get on and off, quickly. 4 speeds forward plus reverse. Hydraulically operated lifting and tilting with all safety features. Electrically powered for silent fume-free operation without fire hazard.

**AISLE SAVERS ARE AVAILABLE** in capacities of 1000, 2000, 4000 lbs. Model 1000 right angle stacks in 59" aisles plus load length.

# C

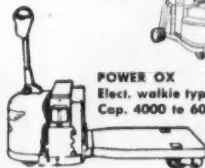
**CRESCENT**

**CRESCENT TRUCK COMPANY**  
Lebanon, Pennsylvania



**PALLETIER**  
Elect. operated.  
Cap. 1000 to  
8000 lbs.

**HI-LIFT OX**  
Walkie type.  
Cap. 2000 to  
3000 lbs.



**POWER OX**  
Elect. walkie type.  
Cap. 4000 to 6000 lbs.

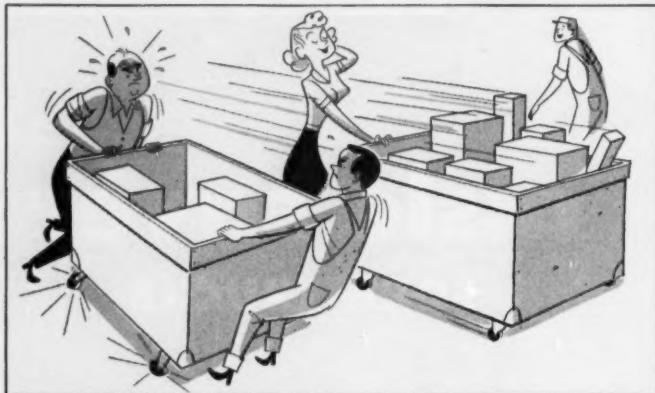


**PALLET HANDLING**  
Elect. or hand pallet  
handling trucks.

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# MATERIALS-HANDLING NEWS

★ Panel Discussions by Bassick, World's Largest Manufacturer of Casters and Floor Protection Equipment ★



## Are WALLFLOWER trucks costing you money?

If you're looking for ways to cut operating costs (and who isn't?), here's one that's often overlooked.

Check your rolling stock—dollies, hand trucks, portable equipment, etc.—and see whether you haven't got a few "wallflowers" that nobody wants to use. You'd be surprised how often equipment that seems to be in good shape stands on the sidelines because inefficient casters make them unpopular with work-

men. Since they're hard to move, they get the cold shoulder in favor of equipment that rolls easily and smoothly. And it's no news that idle equipment wastes money fast.

You can make the "wallflowers" carry their full share of the load simply by equipping them with efficient Bassick casters. Why not try Bassick casters on one of your idle trucks? Then watch how quickly it goes to work for you.

## Put them back in ACTION with these Bassick Casters



SERIES "L99"



SERIES "H99"



SERIES "S99"

These rugged Bassick truck casters make any floor an "Easy Street" for portable equipment. Built to give easier handling and longer life, they come in sizes from 3" to 10", with all types of wheels, have fully hardened raceways.

There's a Bassick industrial caster distributor in your neighborhood who stocks the right size and type of caster for anything from teatables to ten-ton trucks.

## Why Roman roads are arrow-straight



Engineers who marvel at the enduring construction of the old Roman roads sometimes conclude that they're straight as an arrow because that's the best way to build military vehicular highways in a hurry. Some historians offer another explanation. They think these roads are straight because the Romans hadn't discovered the trick of swiveling the wheels of their 4-wheeled carts. Naturally these had a hard time getting around corners, while the famous Roman chariots simply skidded around on their two wheels.

This may also explain why the Romans built so many 2-wheeled state coaches when you'd expect them to have four wheels. An exception is the ornate carriage shown above, which is of uncertain date.

Good casters do not need straight roads. They provide the flexibility so important in materials handling to move any equipment immediately in any direction. Put your loads on Bassick Casters and save precious time and labor. Bassick has the right caster for the job.



THE BASSICK  
COMPANY  
Bridgeport 2, Conn.

In Canada:  
Belleville, Ont.

**Bassick**

A DIVISION OF



MAKING MORE RIDES OF CASTERS MAKING CASTERS DO MORE

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## Cheap Rides For Raw Materials

In thousands of plants, day after day, "PAYLOADERS" are moving fertilizer, chemicals and *all* kinds of bulk materials with great savings in time and costs. Indoors and outdoors these agile tractor-shovels scoop-up, carry, unload, load, transport, stockpile, windrow and spread. They maneuver in close quarters and can travel rapidly in both directions. That's because they have ample power, short wheelbases, big pneumatic tires and multiple speeds in reverse as well as forward. "PAYLOADER" application is simple and flexible too — they can go right to work without a lot of expensive plant alteration.

It will pay *you* to find out how "PAYLOADERS" pay BIG on bulk-handling operations of all kinds.

There are eight models, ranging from the 12 cu. ft. size that will unload box cars, up to the big 90 HP 1½ cu. yd. Model HM . . . also a choice of front-wheel drive, rear-wheel drive or four-wheel drive to best fit your needs. Your "PAYLOADER" Distributor, one of 200 in the U.S. and Canada, is ready to serve you *right* with complete parts and service departments. The Frank G. Hough Co., 731 Sunnyside Ave., Libertyville, Ill.

### FREE HANDBOOK

Tells how and where to look for signs of inefficient bulk materials handling . . . how to analyze, organize and set up an efficient handling system . . . plus many useful tables and data. Write for "Bulk Materials Handbook."



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**What's**

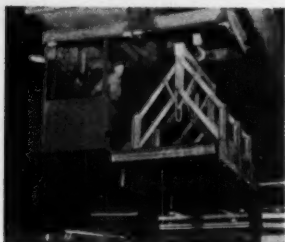
## **NEW in equipment**



### **Versatile Portable Elevator**

Developed to its present design over a period of 8 years, this L-S Handy Hoister is said to fill the demand for a light, easily movable stacker or production tool for one-man handling of 500 and 1000 pound loads. Manufactured by Lewis-Shepard Products, Inc., the unit can be used for placing dies in presses, quick loading drums, cases, crates on trucks, repair work, draining barrels or, as shown here, depositing work on a press. For specialized handling, the lifting platform can be replaced by a lifting arm, a cradle-type platform, a roller platform or forks.

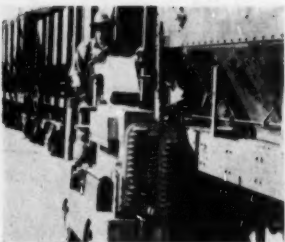
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### **Automatic Sheet and Plate Lifter**

By enabling crane operators to pick up and deposit packs without waiting for men on the ground, this automatic sheet and plate lifter manufactured by Jaeger Machine Company is said to solve several problems. Cranemen can pick from the high stacks or inside holes in stockpiles as easily as from an outside row. In warehousing, only 8 inches of space is needed between stacks, and material can be stacked to the limit of overhead clearance. Standard model handles 24 to 72 inch widths of steel up to 6 tons.

Circle No. 151 on Reader Service Card for more information



### **Gate-Manipulating Truck**

This specially-designed truck manufactured by Elwell-Parker Electric Company eliminates the usual physical exertion required to open and close bottom gates in hopper cars. Power that is normally channeled into raising and lowering loads is shunted to manipulate the gates. The wrench on the truck is moved horizontally to engage the opening and closing mechanism on the rail car (arrow). The wrench is then powered to crank the gates open or closed.

Circle No. 152 on Reader Service Card for more information



### **Self-Adjusting Dockboard**

This Hi-Lo dockboard, manufactured by Dockboards Incorporated, adjusts itself automatically to the truck bed without power. The truck, as it is backed into the dock, presses the extended operating lever shown in the photo to lower the dockboard to the truck bed. Several models are available, including units for installation in new or rebuilt docks, and a packaged unit built to the specific dock height and shipped ready to operate after hanging the counterweight.

Circle No. 153 on Reader Service Card for more information

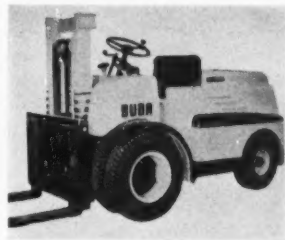


**Capsuled descriptions summarizing the latest information obtained from manufacturers. To get more details quickly, ask for them by number on the free-mailing Reader Service Card.**

#### **Additions to Fork Truck Line**

The Buda Company announces the development of two 6000 pound capacity, pneumatic tired fork trucks, models FTP60-24 and FTPD60-24. These trucks, available with dual or single drive wheels, have a load capacity of 6000 pounds at 24-inch load center and are available in all standard lift heights. Model FTP60-24 is powered by a heavy-duty Buda 6B-230 gasoline engine, while a Buda Diesel, model 6BD-230 powers the FTPD60-24, shown here. They are available with torque converters to eliminate shock to engine and transmissions and to provide smooth power.

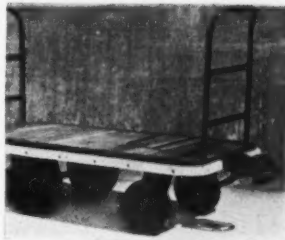
**Circle No. 154 on Reader Service Card for more information**



#### **Trailer for Institutional Use**

A 2000-pound capacity, pneumatic tired trailer for institutional use has been developed by Mercury Manufacturing Company. A feature of the unit is a non-marking, white rubber bumper which surrounds the frame to prevent damage to doorways, walls or projections. Construction features include: flush hardwood deck, 3 by 6 feet by 18½ inches high; 4-ply pneumatic tires, 3.50x6 inch on the casters and 4.00x8 inch on load wheels; rack sockets on sides and ends.

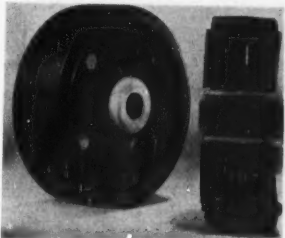
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#### **Demountable Industrial Wheel**

A demountable industrial wheel with a "bonded-to-steel" rubber tread that, according to tests, will not slip, stretch or creep under heavy loads is being marketed by The Rapids-Standard Company, Inc. Called the "Rapistan MB", this wheel incorporates exclusive design features that are said to increase wheel life substantially and cut costs up to 30 percent. The replaceable tire of the wheel has a thick live-rubber tread that is bonded for life to a steel inner band, and the tread is of uniform thickness throughout.

**Circle No. 156 on Reader Service Card for more information**



#### **Diesel Mounted Front-End Loader**

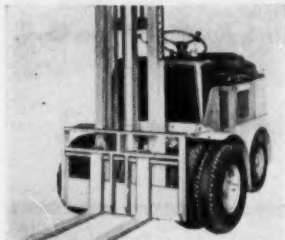
The combination of diesel power with front-end loading up to 5000 pounds capacity is featured in the Baker-Lull Shovel loader, mounted on a Sheppard industrial wheel-type tractor, according to Baker-Lull Corp. It will crowd and dig below tractor level, lift a 5000 pound load to 10 feet, 3 inches, dump it at 8 feet, 6 inches, and reach 5 feet, 10 inches ahead of the tractor radiator shield. Lift speed is 12 seconds, lowering speed, 9 seconds. Special double-acting hydraulic cylinder design enables the operator to shake the material bucket thoroughly clean.

**Circle No. 157 on Reader Service Card for more information**



## WHAT'S NEW IN EQUIPMENT

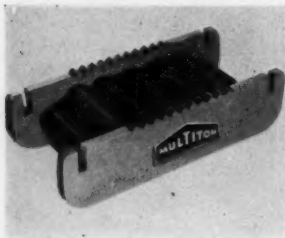
*Continued*



### Fork Trucks With Dual Wheels

Towmotor Corp. announces that Towmotor Models 480-P and LT-60 pneumatic-tired lift trucks are now offered with dual drive wheels as optional original equipment. Mounted on the drive axle as replacements for standard single wheels, these dual drive wheels afford more tread surface for safer handling of loads over soft ground and insure greater stability of trucks equipped with extra-high lifts.

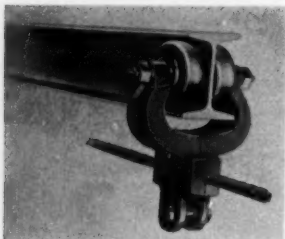
Circle No. 158 on Reader Service Card for more information



### Heavy-Duty Roller Skid

The Multiton roller skid has been developed and is now marketed by Stokvis Edera & Company, Inc. The roller skid is basically a heavy-duty dolly working on the self-laying track principle. In this respect, it moves in the same way as a tractor or a tank. Consisting of a hardened cast alloy-steel frame with hardened roller forming the "tank" track and anti-friction ball bearings between rollers, it is able to support heavy loads and move them easily over concrete and other hard floors.

Circle No. 159 on Reader Service Card for more information



### Cable Overhead Trolley Conveyor

Said to incorporate all the low-cost, easy-to-install features and versatility of Buschman  $\frac{3}{4}$ -inch Cable Universal Overhead Trolley Conveyor, this conveyor has  $\frac{3}{4}$ -inch cable that gives greatly increased capacity. The conveyor's trolleys are rated at 100 and 200 pounds capacity per trolley for standard and Dubl-Duty wheels respectively, operating on standard 3-inch I-beam track. Manufacturer is The E. W. Buschman Co.

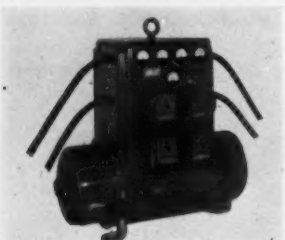
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### Economical Steel Casters

These 5- and 6-inch casters which feature double ball-bearing swivel action for easier handling of movable equipment have been added to the "68" series casters manufactured by Bassick Company. Said to be priced lower than many other casters of these sizes having single ball-bearing races, the casters also feature case-hardened raceways for extra durability and longer service life. These casters are recommended for trucks and other miscellaneous portable equipment for loads up to 1400 pounds.

Circle No. 161 on Reader Service Card for more information



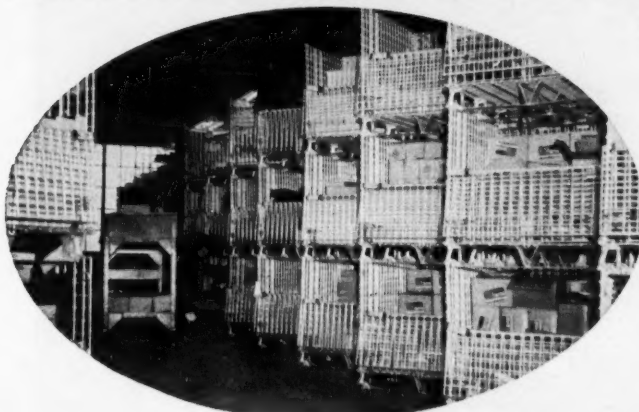
### Industrial Truck Battery Charger

This four-circuit monitor charger, manufactured by Motor Generator Corp., is a four-circuit package unit for 6-cell lead-acid or 10-cell nickel-iron motorized hand truck batteries. The monitor charger combines the efficiency and lower-maintenance-per-circuit of multiple-circuit equipment with the compactness, simplicity and flexibility of the single-circuit unit. Four charge controls, the motor starting switch, and the motor and generator controls are all mounted in the monitor top control cabinet.

Circle No. 162 on Reader Service Card for more information

*(Continued on page 94)*

# How Palletainer saves you money in warehousing, production, shipping



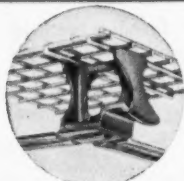
**WAREHOUSING**

## "Warehouse" Palletainer cuts inventory costs

Special "WAREHOUSE" PALLETAINER is a real time and labor saver. Contents are always visible for quick inventory. Hinged front section permits unusually quick access even when units are stacked. WAREHOUSE PALLETAINERS are widely used for makeup operations and for temporary storage of nearly every type of goods. Anything contained by a 2" mesh can be stored more quickly and safely in PALLETAINERS.

## "Standard" Palletainer for production and shipping

Here's how many manufacturers enjoy PALLETAINER dividends. Units are placed in foundry, pressroom and assembly line. Natural receptacles for forgings, stampings or finished parts, they are moved quickly and easily from one operation to the next. When the final process is completed contents remain in PALLETAINERS for temporary storage or for actual shipment! Virtually indestructible steel rod construction assures maximum protection on the move. Costs are cut further when empty PALLETAINERS fold to 1/4 depth for return trip.



MALLEABLE CAST LEGS are available on any standard PALLETAINER model for greater unit capacities, simplified stacking and higher safety margin.



NEW LOCKING DEVICE on all PALLETAINERS holds sides securely, regardless of load. Cannot be released accidentally, cannot be lost in shipment.

Whatever your handling needs, one of the many PALLETAINER models may solve it. Now's the time to learn how little it costs to enjoy these PALLETAINER savings. We'll be glad to survey your needs at your convenience.



**UNION STEEL PRODUCTS COMPANY**  
Albion, Michigan 1903 Our Golden Anniversary 1953



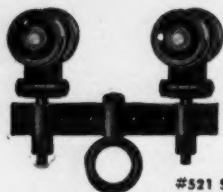
Circle No. 121 on Reader Service Card for more information

# COBURN



## OVERHEAD CONVEYING EQUIPMENT

**save money—install it yourself!**



#521 Single  
Swing-Out Carrier



#702-S Side  
Ear Bracket



Straight Track

No need for expensive installation costs with Coburn Overhead Conveying Equipment. Coburn track, brackets and carriers are simple in design . . . can be set up quickly and easily by your own mechanics or other plant personnel. What's more, the sectional design of Coburn track permits inexpensive rearrangement or extension as the need occurs.

Find out how you can get all the advantages of modern overhead conveying equipment . . . while at the same time keeping investment and installation costs to a minimum. Write for Catalog #220 to Coburn Sales and Engineering, 56 Sterling Street, Clinton, Massachusetts.

THE COLORADO FUEL AND IRON CORPORATION—Denver, Colorado  
PACIFIC COAST DIVISION—Oakland, California  
WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo  
Chicago • Detroit • New Orleans • New York • Philadelphia

### COBURN PRODUCTS

PRODUCTS BY WICKWIRE SPENCER STEEL DIVISION  
OF THE COLORADO FUEL AND IRON CORPORATION



Circle No. 134 on Reader Service Card for more information Circle No. 133 on Reader Service Card

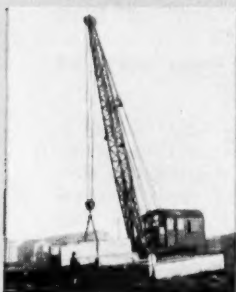
AUGUST, 1953 • FLOW

# There's a **BROWNING CRANE** *Designed for Your job!*

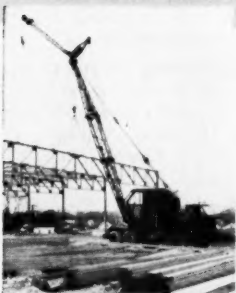
**BROWNING'S**  
are Star  
Performers  
on these jobs



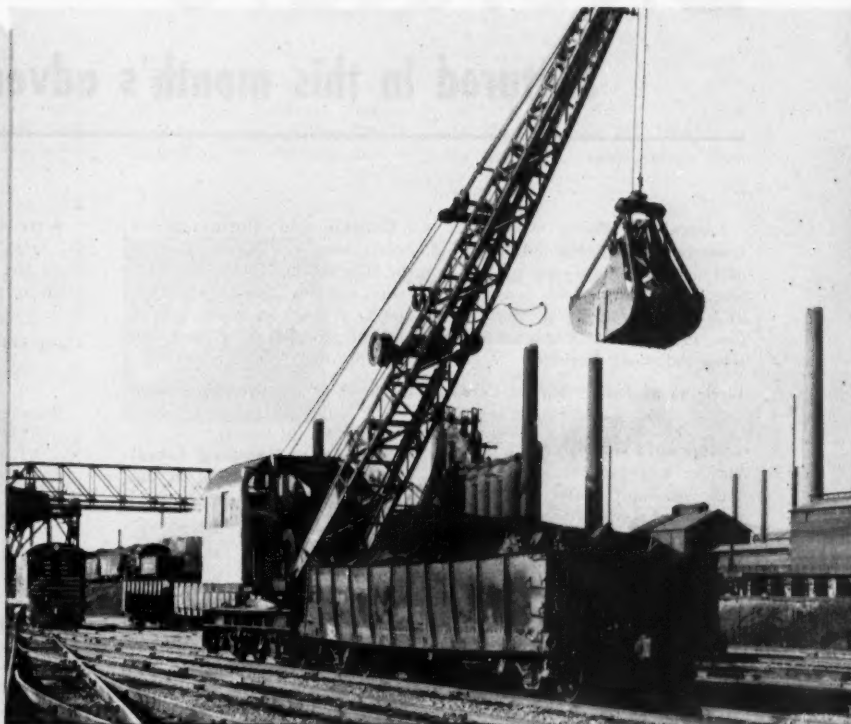
**CAR LOADING**



**MAINTENANCE-OF-WAY WORK**



**STEEL ERECTING**



With bucket, hook-block or magnet, this versatile Browning 30-Ton Diesel TorQFlo Locomotive Crane moves from job to job at an eastern steel plant, loads and switches cars, handles any heavy crane work on production or maintenance.



**SCRAP HANDLING & SWITCHING**

**T**EN basic models for heavy-materials handling with almost unlimited combinations of capacities, booms and equipment enable Browning to deliver a crane exactly suited to your needs. This wide selection assures you the right type of crane with ample power and capacity for your job. It also eliminates the necessity of over-investment in a crane larger than you need.

Brownings are the star performers of the power-crane industry . . . that's why crane men everywhere will tell you "You can't go wrong with a Browning on the job."

Write for complete specifications on the Browning model designed for your job.

**WAGON CRANES**  
2 Models  
17½ to 25 Tons  
25 to 100 Ft.  
Booms



**TRUCK CRANES**  
5 Models  
8 to 30 Tons  
25 to 120 Ft.  
Booms



**LOCOMOTIVE CRANES**  
3 Models  
25 to 50 Tons  
50 to 135 Ft.  
Booms



**THE BROWNING CRANE & SHOVEL CO.**  
Dept. C • 14224 Waterloo Road • Cleveland 10, Ohio

**BROWNING**  
LOCOMOTIVE, WAGON  
TRUCK AND CRAWLER *Cranes*



# Literature

## featured in this month's advertisements

---

Literature telling why instant two-way radio communication is a "must" for patrolling plant and grounds is available from the General Electric Co. through its Communications Advisory Service.

Circle 53 on Reader Service Card

Awkward shapes are hard to handle and present a difficult bulk packaging and shipping problem. Literature from Acme Steel Co. is apt to contain the answer to your odd shaped product shipments.

Circle 2 on Reader Service Card

No truck downtime is maintained in literature available from the Ready Power Co. in describing its interchangeable power units for industrial trucks. They call it inexpensive preventive maintenance.

Circle 103 on Reader Service Card

Buda Co. invites you to "put yourself in the driver's seat" with its new 36-page descriptive booklet giving complete details on the entire line of Diesel and gasoline powered industrial trucks.

Circle 27 on Reader Service Card

Bulletin No. 53 may be obtained from the Moto-Truc Co. giving details of its line of Walkie type trucks including the Hi-Lift, the Pallet Type, the Platform type and the Grip-All tractor unit.

Circle 93 on Reader Service Card

Considerable information on hoists may be obtained from the Chisholm-Moore Electric Hoist Catalog. Available on request, it also includes prices and the name of your local CM distributor.

Circle 43 on Reader Service Card

The Baker Handling Library, a new portfolio of actual case histories, may be obtained from the Baker-Raulang Co. It tells how increased efficiency and reduced costs resulted from Baker trucks.

Circle 15 on Reader Service Card

An education in industrial truck maintenance and maximum operating efficiency has been developed by Yale & Towne Mfg. Co. Every company is invited to provide this training program for its operators.

Circle 129 on Reader Service Card

A booklet entitled, "LIF-Tronics . . . science of material handling," is available from the Wayne Pump Co. It describes how lifts can be utilized during every stage of plant production and shipping.

Circle 124 on Reader Service Card

A novel "TV" brochure describing the complete line of mobile cranes and shovels may be obtained from the Unit Crane & Shovel Co.

Circle 122 on Reader Service Card

A free booklet, "What Makes It Tick," may be requested from the Towmotor Corp. describing popular features of its fork truck line.

Circle 119 on Reader Service Card

Standard Conveyor Co. has available its general catalog No. FL-83 describing its complete line roller and belt conveyors, spiral chutes and pneumatic tube systems.

Circle 114 on Reader Service Card

Packaging magic is told in literature available from Signode Steel Strapping Co. How once difficult items now are palletized for safe bulk shipment is one of the achievements of the steel strapping industry.

Circle 110 on Reader Service Card

Proper positioning of stock is important to production, according to literature available from Rack Hydraulic Equipment Co., which describes its line of hydraulic elevating tables.

Circle 101 on Reader Service Card

A current catalog on the Oil-draulic elevator line may be obtained from Rotary Lift Co. With capacities up to 100,000 pounds they're built for the most rugged useage, the company maintains.

Circle 138 on Reader Service Card

A copy of the Booklet, "Look Into The Facts About Dockboards," may be obtained from the Magnesium Co. of America. It emphasizes the danger and cost of makeshift dock plates.

Circle 78 on Reader Service Card

Specification AL-3 may be requested from the Jaeger Machine Co. which manufactures the automatic lifter for handling sheet steel or plate. The unit is controlled by one man in his crane.

Circle 136 on Reader Service Card

Detailed information may be obtained from the International Staple Machine Co. on economical closure of corrugated and fibre containers.

Circle 70 on Reader Service Card

Information on rugged dependability of the Bearcat Hoist is told in literature available from the Harrington Co. Six models are described with capacities up to 4000 pounds.

Circle 62 on Reader Service Card

Literature describing details and low prices of the Gee-Vee-Line all-aluminum wheel conveyor sections may be requested from Haslett Chute & Conveyor Co. A 10 foot section weighs only 26 pounds.

Circle 68 on Reader Service Card

Goodyear Tire and Rubber Co. has details concerning its line of tires to fit the new wide based rims featured on many industrial trucks today. The increased width is said to offer lower rolling resistance, greater stability and longer wear.

Circle 59 on Reader Service Card

Complete details of how the experts from two fine industrial packaging laboratories stand ready to help you cut costs are available from General Box Co. The booklet is entitled, "The General Box," and the laboratories also are operated by General.

Circle 52 on Reader Service Card

There's lots to learn from literature obtainable from Gould-National Batteries Inc. on the merits of battery power in motivating industrial trucks and their loads. It's available on request.

Circle 61 on Reader Service Card

Information on their Tire and Wheel Analysis Plan as well as a copy of the "Industrial Tire Handbook" may be

obtained from the B. F. Goodrich Co.

Circle 58 on Reader Service Card

Complete packaging service is explained in literature available from the Gerrard Steel Strapping Division of U. S. Steel Corp. The company now offers both round and flat steel strapping to suit every bundling or tying requirement.

Circle 55 on Reader Service Card



## UNBREAKABLE FABRICATED STEEL CASTERS and WHEELS



● Clark unbreakable fabricated steel casters last longer; require less maintenance, and replacements; cut your operating costs; save manpower and materials. Your efficiency goes up, costs go down! Clark casters are made in light, medium and heavy duty steel and rubber tired in 6, 8, 10, and 12 inch sizes. The tires are available in oil resistant, floor protective and rubber.



● Clark unbreakable fabricated steel wheels really stand up under heavy loads. Tests prove that Clark wheels will handle a 10 to 1 overload with ease. Only the highest quality rubber product is specified in molding Clark wheels. Clark wheels are guaranteed against tire and rim separation and are always easy rolling. Clark steel wheels are available with steel face, rubber, composition, and oil resistant tires.

Write now to have Clark unbreakable fabricated steel casters and wheels tested in your plant.

CLARK WHEELS PROVE THEMSELVES!



ALL STEEL WELDED TRUCK CO.  
ROCKFORD, ILLINOIS

Circle No. 3 on Reader Service Card for more information

KNOWN FROM  
COAST TO  
COAST FOR

**RUGGED  
DEPENDABILITY**



REMEMBER

**MICHIGAN  
YOUR BEST  
CRANE BUY!**

*Compare Feature for Feature*

**IMMEDIATE  
DELIVERY**

Every Michigan crane combines precision engineering and manufacturing with such important features as anti-friction bearings at all moving points on bridge and trolley, optional fluid couplings, and easily replaceable standard mill parts used throughout! Why not consult with our staff of material handling experts on your particular problem, with no obligation or cost? It may save you hundreds of dollars in your final crane installation!

WRITE FOR FREE LITERATURE TODAY!

**MICHIGAN CRANE & CONVEYOR CO.**

117 MCKINSTRY AVENUE • DETROIT 9, MICHIGAN

Circle No. 91 on Reader Service Card for more information

## AD LITERATURE

*Continued*

Further information may be obtained from Gemar Associates on their method of making a preliminary survey of your plant to determine potential savings and the cost of their program. The survey, of course, is without charge.

Circle 51 on Reader Service Card

Evans Products Co. invites requests for its colorful booklet which tells how railroads can earn extra revenue and shippers can cut shipping costs with time-tested DF Equipment.

Circle 48 on Reader Service Card

Details on speed, capacity and various models of worm drive electric hoists may be obtained from ElectroLift Inc.

Circle 44 on Reader Service Card

Fork trucks can be adapted to many uses that their owners might never know about. The Clark Equipment Co. has available its current attachment catalog containing numerous tips for obtaining the most from your fork truck.

Circle 34 on Reader Service Card

If your job calls for the handling of large quantities of bulk materials, Barber-Greene Co. invites you to write for information they have which will make your task easier and more efficient. They maintain B-G Bucket Loaders have moved more than a billion cubic yards.

Circle 18 on Reader Service Card

Where low headroom creates a problem during hoisting operations, literature available from the Wright Hoist Division, American Chain & Cable Co., might contain the answer. The WH-1 Speedway hoist can operate within 12 $\frac{1}{4}$  inches of the beam.

Circle 6 on Reader Service Card

AUGUST, 1953 • FLOW

# Here is the most complete training program in the materials handling field

...for any make or model Industrial Truck

To get the most from your investment in Industrial Trucks, you must use and maintain them properly. And, the best way to do this...the best way to realize the full, cost-cutting benefits of your equipment is to give every operator of every Gas, Electric or Diesel Truck this time and field-tested YALE training program...the most complete program of its kind available.



## Now expert instruction for your operators **PROCEDURE • SAFETY MAINTENANCE**

Every one of your operators should have this training! It's designed by experienced materials handling engineers to make experts out of beginners...can be adapted to provide experienced men with a short refresher course.

And, because this YALE program is so complete, it can easily be varied to fit *your* exact requirements...*your* own industry...*your* choice of YALE Gas, Electric or Diesel Trucks.

Investigate...find out how proper training can mean more handling jobs done faster, at less cost...find out how to reduce costly, time-consuming accidents to men and machinery...how to realize substantial savings in maintenance costs and increased Truck life. Just mail the coupon today.

\*Registered in U. S. Patent Office



## **YALE\*** MATERIALS HANDLING EQUIPMENT

MAIL THIS COUPON TODAY

The **YALE & TOWNE** Manufacturing Co., Dept. 48  
Roosevelt Blvd. & Haldeman Ave., Phila. 15, Pa.

Please have your local representative call to explain  
how this training program can benefit me.

Company \_\_\_\_\_

Name \_\_\_\_\_ Title \_\_\_\_\_

Street \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_




In Canada write: The Yale & Towne Manufacturing Company  
St. Catharines, Ontario, Canada

**Gas, Electric, Diesel Lift Trucks • Worksavers • Hand Trucks • Hand and Electric Hoists • Pul-Lifts**

Circle No. 129 on Reader Service Card for more information

FLOW • AUGUST, 1953

WHEREVER

PEOPLE   
MATERIALS   
and EQUIPMENT 

ARE ON THE MOVE

**STANLEY**

*Magic Door*  
**CONTROLS**



### SPEED UP TRAFFIC and LOWER COSTS



#### MAGIC EYE

Photoelectric controls adaptable to most types of doors. Light ray may be arranged on posts, walls, ceilings or floors.



#### MAGIC CARPET

Primarily for entrance doors and service doors used by pedestrians and light wheeled traffic; not for heavy industrial uses.



#### PUSH PLATES

Wall push plates or kick plates are desirable in certain applications and are particularly adapted to many industrial locations.



#### PULL CORD

An economical and effective way of handling industrial doors.

**COMBINATIONS** Many installations call for combinations of two or more types of controls. Stanley field representatives will gladly share their knowledge gained through 20 year's experience in planning the best arrangement for any situation.

SEE STANLEY MAGIC DOORS IN ACTION AT THE PLANT MAINTENANCE SHOW, CLEVELAND — BOOTH #10

Stanley Magic Doors offer measurable savings in plant operation by minimizing losses of conditioned air; by reducing damage to doors and equipment; by saving time in opening and closing doors; by permitting inter-department traffic to flow uninterrupted and, in addition, build employee morale. Stanley-controlled doors open on approach, stay open until passage is clear, then close automatically. They are easily installed on new or existing doors that swing, slide or fold.

**STANLEY**

*Magic Door*  
**CONTROLS**

Representatives  
in principal  
cities

The Stanley Works, Magic Door Division,  
2018 Lake St., New Britain, Conn.

☐ Please send full information on Stanley Magic Door Controls.  
☐ Have representative call.

Company Name \_\_\_\_\_

My Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS • STANLEY STEEL STRAPPING • STANLEY STEEL

Circle No. 115 on Reader Service Card for more information

## AD LITERATURE

*Continued*

Numerous free technical bulletins may be obtained from Better Packages Inc. covering every conceivable application where gummed sealing tape can prove helpful and more efficient.

Circle 22 on Reader Service Card

E. W. Buschman Company has its latest bulletin No. 40 ready for distribution. It contains details of the Universal Overhead Cable Conveyor System.

Circle 29 on Reader Service Card

A test demonstration of unbreakable fabricated steel casters and wheels in your own plant can be arranged with representatives of the All Steel Welded Truck Co. The manufacturer maintains Clark wheels prove themselves.

Circle 3 on Reader Service Card

An answer to almost any materials handling problem may be found in two companion catalogs obtainable from the Hyster Co. Catalog 1258 contains the Hyster industrial truck line, while Catalog 1266 lists all of the profit-making attachments.

Circle 69 on Reader Service Card

New developments in casters have progressed a long way in recent years. Bassick Division has information available that will bring you up to date on your own caster requirements on anything from teatables to 10-ton trucks.

Circle 19 on Reader Service Card

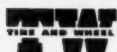
Complete information on Lev-R-Matic Drive fork lift trucks may be obtained from the Mobilift Corp. The trucks are of the stand-up type affording maximum visibility at all times.

Circle 90 on Reader Service Card

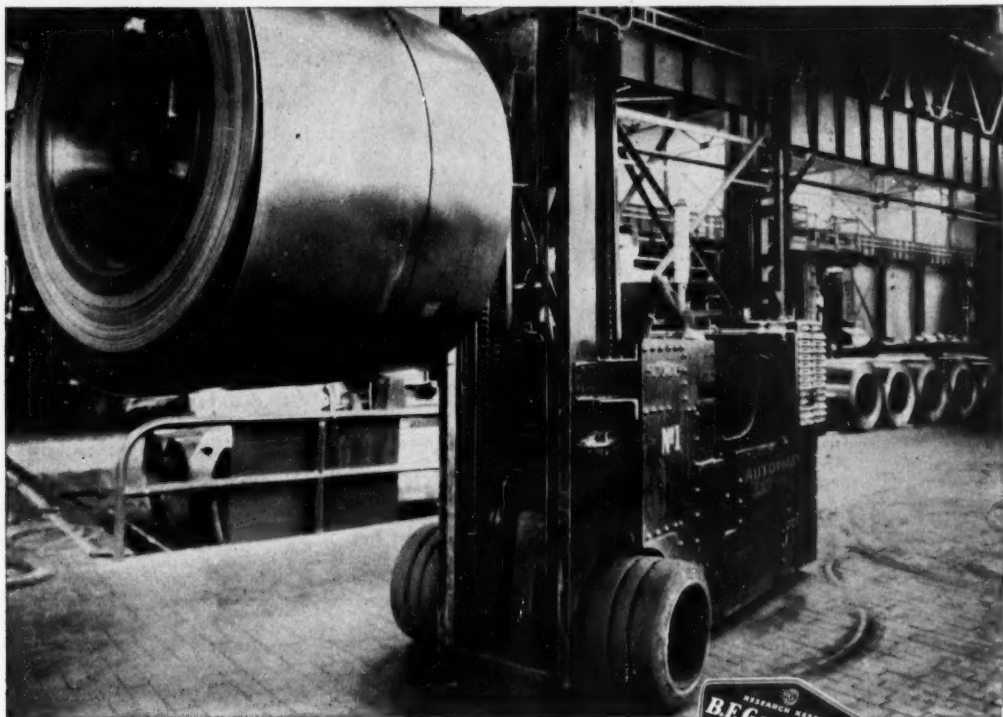
AUGUST, 1953 • FLOW



# B.F. Goodrich



**TW ANALYSIS** solves your industrial tire problems, saves you as much as 50%



**WHAT'S** your industrial tire problem? Too much power-consumption or rolling resistance? Not enough traction? Cushioning or flotation? Or is it cutting, tread chipping or oil damage? No matter what it is, there's an industrial tire designed to solve it, one that may give you up to *twice as much service* as any other tire.

To help you specify this tire, B. F. Goodrich has developed the Tire and Wheel Analysis Plan. Without obligation, a trained BFG man will study your materials handling operations. He'll recommend the right type tires for you to use—solid, semi-pneumatic or pneumatic. He'll tell you what tread design is best—smooth, directional, non-directional—and if a special tread compound should be used.

Follow the TW Analysis man's advice and you can save as much as 50% on industrial tire costs. And his maintenance tips can cut your bills up to 20%. His advice is impartial, for B. F. Goodrich makes, and BFG retailers sell, a complete line of industrial tires.

To find out more about this free B. F. Goodrich Tire and Wheel Analysis Plan, mail the coupon or call your BFG retailer. A special TW Analysis Plan is available for manufacturers of industrial handling equipment.

**Specify B. F. Goodrich tires when ordering new equipment**

Circle No. 58 on Reader Service Card for more information



The B. F. Goodrich Company  
Department TW-153, Akron 18, Ohio

Please send me:

- ☐ Additional information on your new Tire and Wheel Analysis Plan  
☐ A free copy of your "Industrial Tire Guidebook"

Name

Company

Street

City  Zone  State

# MORE PRODUCTION from each PRODUCTION DOLLAR



An immediate way to realize more production per manhour—and at minimum investment—is by the installation of CM Electric Hoists. By making use of non-productive overhead space you can speed the flow of parts and assemblies... raise employee efficiency levels... reduce fatigue. As anyone can operate these CM Electric Hoists, skilled manpower is released for other production operations. Valuable floor space is made free for added production. Here are two CM electric hoists favored particularly by plant production executives.



## CM METEOR Capacities: $\frac{1}{2}$ to 5 tons

Low headroom wire rope electric hoist for heavy duty service. Single and two speed models. Push button control. High efficiency airplane type cooling. Helical gears. Fully enclosed operating parts. Precision bearings at all rotating points. Plain, geared or motor driven trolleys.

## CM COMET Capacities: $\frac{1}{4}$ to 2 tons

Portable, compact and rugged electric chain hoist. Available in push button and pendant rope control models. Equipped with flexible HERC-ALLOY load chain. Fully enclosed working parts. Upper and lower safety limits. Permanently lubricated. Plug in on 110, 220 or 440 volt power line. Used extensively in production operations.



● **CM Electric Hoist Catalog** sent on request with prices and name of your local CM distributor. Production executives find our catalog a good source of hoist information.



## CHISHOLM-MOORE HOIST DIVISION COLUMBUS MCKINNON CHAIN CORPORATION

TONAWANDA, NEW YORK  
DISTRICT OFFICES: NEW YORK, CHICAGO, CLEVELAND

Circle No. 43 on Reader Service Card for more information

## AD LITERATURE

*Continued*

A strapping analysis may be requested of the Brainard Steel Division to help modernize as well as economize your packaging and shipping operations.

Circle 25 on Reader Service Card

A highly illustrated bulletin containing action photographs, construction details and specifications of the Traveloader may be requested from the Baker-Raulang Co.

Circle 14 on Reader Service Card

A free illustrated bulletin showing typical installations of Adjust-A-Docks may be obtained from Rowe Methods Inc. Hydraulically operated, they raise or lower to truck bed height.

Circle 107 on Reader Service Card

Bulletin No. 35 may be secured from Stak-Mor Sales Co. giving complete details on self-centering Stak-Mor stacking pallets.

Circle 113 on Reader Service Card

A 14-page folder giving sizes, types and prices may be obtained from Buffalo Weaving & Belting Co. covering its complete line of more than 200 sizes and 35 widths.

Circle 28 on Reader Service Card

Catalog No. 210, which may be obtained from Arguto Oil-less Bearing Co. is a reference book designed to eliminate conveyor roll troubles. It also contains complete information on Arguto's screw conveyor bearings and other pertinent engineering data.

Circle 10 on Reader Service Card

An illustrated brochure may be obtained from Hemco Mfg. Inc. describing the Hemco-Motive switching and spotting locomotive.

Circle 63 on Reader Service Card

**ONLY**

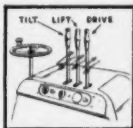
# MOBILIFT

## STAND-UP FORK LIFT TRUCKS

*Give You*

**Lev-R-Matic  
DRIVE**

- No Gears to Shift
- Speeds All Movements



### MOBILIFT MOBILITY

- 360° Steering—  
ZERO Inner Turning Radius
- Excels in Close Quarters



### MOBILIFT STAND-UPS

- Ample Size Platform
- On and Off in Seconds
- All Around Visibility



Only MOBILIFT Stand-Up type Fork Lift Trucks give you Lev-R-Matic push-pull controls for forward-back, elevating, tilting...**THERE ARE NO GEARS TO SHIFT!**

Only MOBILIFTS give you MOBILIFT agility and quickness with their compact design, short overall length, 360° steering and ZERO inner turning radius. They excel in congested areas.

Only MOBILIFTS give you perfected Stand-Up models—for more work, faster work, less operating expenses.

To these *plus* advantages add MOBILIFT air-cooled, 3-cylinder engine's reliable power and easy accessibility for minimum service and repair...the answer is obvious:

**YOU'LL ACCOMPLISH MORE...WORK FASTER...  
EARN MORE WITH MOBILIFT FORK LIFT TRUCKS**

*Write for complete information*



## MOBILIFT CORPORATION

835 S. E. MAIN ST., PORTLAND 14, OREGON

2317 W. 10th, Chicago • 700 Patterson Ave., E. Rutherford, N. J. • 2724 Taylor St., Dallas

7117 Peachtree St. N.W., Atlanta • 2720 San Pablo Ave., Berkeley

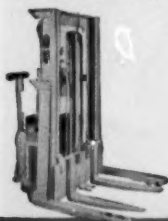
Circle No. 90 on Reader Service Card for more information

# Modern Materials HANDLING?



Our illustrated Indian family helps to prove a point . . . old fashioned, inadequate materials handling techniques may be costing you money . . . money that perhaps could be converted into profit. It costs you *nothing* to investigate the MOTO-TRUC "Walkie" line . . . and most important . . . **THERE'S A MOTO-TRUC FOR EVERY PURPOSE.** Write for Bulletin No. 53.

Hi-lift "Walkie" type  
3000-4000 lbs. capacity



Pallet type "Walkie" truck  
4000-6000 lbs. capacity



Platform "Walkie" type  
4,000-10,000 lbs. capacity



Grip-All Tractor



*The* **MOTO-TRUC Co**

Representatives in Principal Cities

1955 E. 59th St. • Cleveland 3, Ohio  
Pallet . . . Platform . . . Hi-Lift Trucks  
**LARGEST EXCLUSIVE MANUFACTURER  
OF "WALKIES"**





Crane operators, unaided, now pick up and deposit steel packs

## no men on the ground

**Automatic sheet lifter, controlled from crane, speeds handling, saves labor and 25% - 50% of floor space**

In building thousands of units of Jaeger heavy construction machinery, our plant faced the same problem you have—warehousing many sizes of sheet and plate and handling from warehouse to structural shop.

We finally licked this problem by designing our own sheet lifter, which opens and closes automatically. It has saved us thousands of dollars and performed so perfectly that we are now building it for others.

Automatic lift will save you the delays as well as the labor cost of men climbing over the stacks to pass chain slings or operate lifters by hand.

It will save 25% to 50% of your warehouse space. You need only 8" between stacks instead of 24" to 30", and can stack to the limit of overhead clearance. We now warehouse 40% more steel in the same floor space.

It greatly speeds sheet handling. A crane man, with only one man below to lay stringers, can handle incoming material from cars or trucks to stockpile. No men on the ground are needed when transferring from

stockpile to shop. And crane operator can pick up packs from high stacks or inside holes as easily as from outside rows.

Being automatic and positive in action, this lifter is completely safe. It has never caused an accident or dropped a pack. It will save you its cost several times, in its first year.

### SPECIAL OFFER

**with 30-day return privilege**

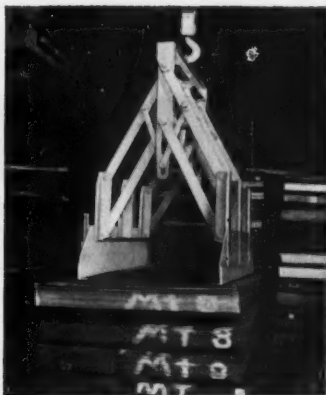
To manufacturers and warehousemen who handle substantial tonnages of sheet or plate, we offer the Jaeger Automatic Lifter with a flat guarantee of satisfactory service or privilege of return. For complete description, prices and terms, write us for Specification AL-3.

**THE JAEGER MACHINE COMPANY**  
611 Dublin Avenue, Columbus 16, Ohio

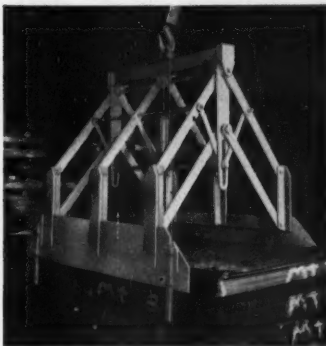
Tractor Loaders • Air Compressors • Centrifugal Pumps  
Truck Mixers • Concrete Mixers • Paving Machines

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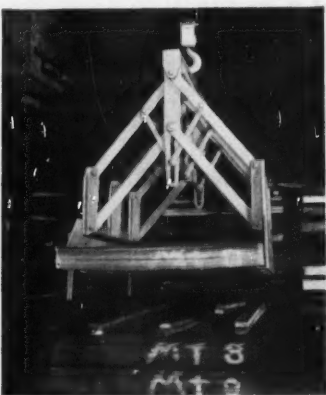
FLOW • AUGUST, 1953



**1** Lifter opens under its own weight when lowered onto pack. Rollers, set in the gripper flanges, let them glide smoothly across top sheet of pack.



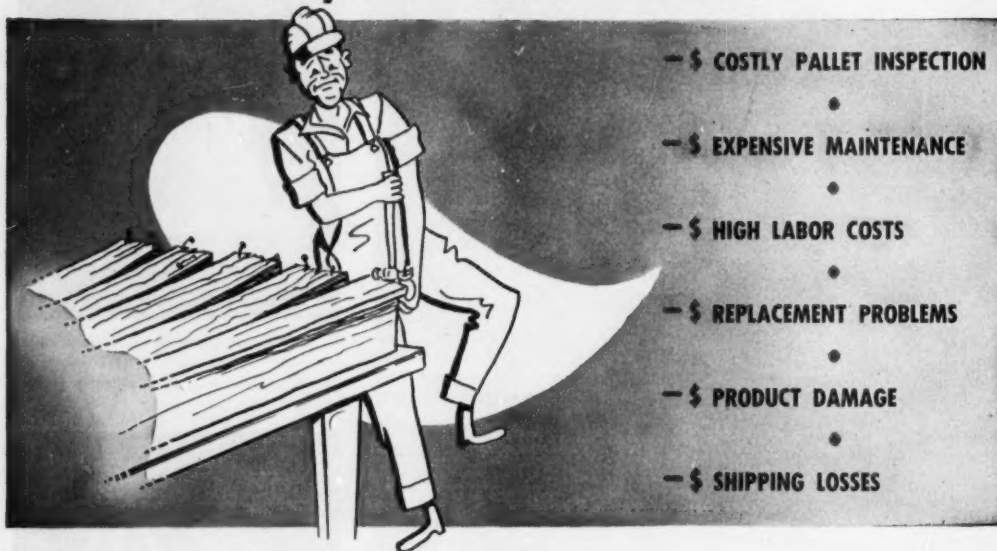
**2** Sliding guides, on near side, square up lifter with edge of pack. Hydraulic check valve, controlled from cab crane, prevents lifter from closing until properly positioned.



**3** Releasing check valve allows lifter to close by tong action when hoisted. The heavier the load, the tighter the grip on the pack. Lifter is fully covered by patent.

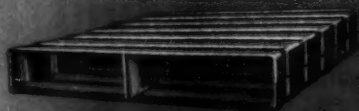


# If THIS is your Pallet Problem...



# Then HERE is your Answer...

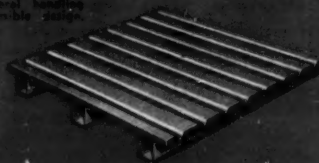
- +\$ NO WEAR PROBLEM
- 
- +\$ NO INSPECTION NEEDED
- 
- +\$ MAINTENANCE ELIMINATED
- 
- +\$ MINIMUM REPLACEMENT
- 
- +\$ PRODUCT PROTECTION
- 
- +\$ YEARS OF EXTRA LIFE



Style 110-A is an extremely popular general handling unit of reasonable design.



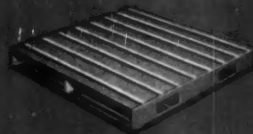
Style 115 is a special roller conveyor transfer pallet designed to fit over conveyor track.



Style 112 is a single faced pallet for handling bags, drums, bagged materials, etc.



Style 100 is the famous Powell Master stacking, stacking pallet.



Style 100 — versatile, four-way pallet available in solid or slotted design.



**THE POWELL PRESSED STEEL COMPANY  
HUBBARD, OHIO**

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## A Unique Cart for Simplified

# Assembly of Complex Units

**H**ERE'S how an ingenious assembly cart streamlined assembly of gas turbine compressors at AiResearch Mfg. Co., Phoenix.

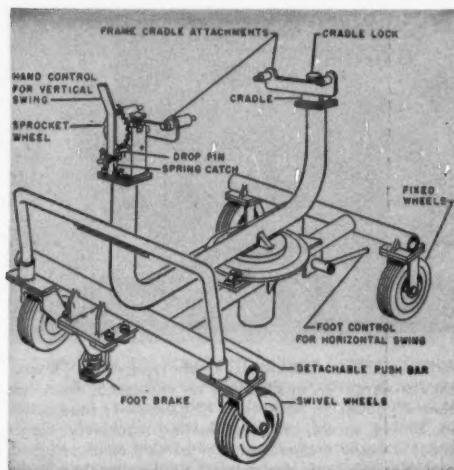
The compressors, hearts of auxiliary pneumatic power systems for jet and turbojet aircraft, are carried through the entire assembly process, test labs, and final inspection to the shipping room on light weight carts that are easily handled by one man.

Design of the carts makes it possible for assembly workers at each line to remain conveniently close to their tool benches and small part trays while working. By hand control, a worker can rotate a unit being assembled, through 360°, vertically. The device is geared to stop on increments of 15°. Foot controls enable the unit being worked on to rotate horizontally through 360°, stopping wherever the operator chooses.

At each assembly point, the cart itself is secured to the plant floor by a foot brake to prevent cart or assembly movement during torque actions on the engine assembly.

The initial sub-assembly compressor frame, though bulky in shape is easily loaded on a cart at the first assembly point by two men. When setting the initial frame into the open cart cradle, only a slight pressure on the hand control is needed to trigger off a spring catch allowing a holding pin to drop, by the force of gravity, into the sprocket where it is easily locked in place.

Designed by the engineering department of the

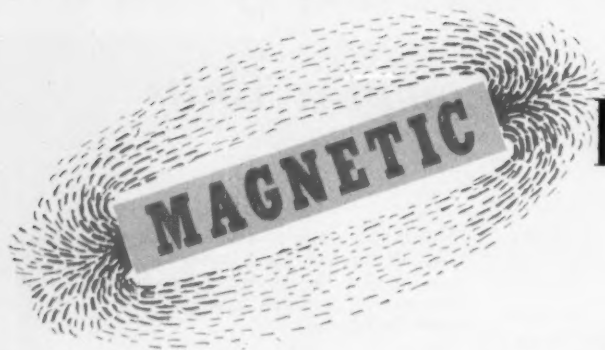


Arizona AiResearch division and built at the Phoenix plant, the cart is mounted on four 8 x 2.50 zero rubber pressure tires. The two front wheels are fixed and the rear two are on swivels, enabling the cart to make a small turning circle.

The new assembly cart has resulted in reducing operator fatigue, damage free transit of the delicate mechanisms throughout the plant, and a degree of flexibility never before possible. Independent units can be pulled out of the assembly line for special work at any time without interruption of regular flow.



**GAS TURBINE COMPRESSOR ASSEMBLY LINE** (above) owes its efficiency and flexibility to a unique assembly cart. The cart makes it possible for workers to remain close to their tool benches and their small parts trays at all times. Tie-ups as a result of troublesome units are eliminated by this flexible system. Sketch at left shows details of the carts which were designed by the Arizona AiResearch division and are built by the company's Phoenix plant.



# HANDLING

**More and more magnets are drawing attention to the material handling jobs they can do. Maybe they could do a job for you.**

**N**EW USES FOR MAGNETS, of both the "electro" and "permanent" types, are being devised almost daily—and most of the developments are in the field of material handling. In addition to handling, as such, magnetic equipment offers some dividend advantages: it separates ferrous from non-ferrous materials, as in the elimination of tramp iron from all sorts of materials in process; the separation of steel sheets held tightly together by the bond of protective lubricant; and the

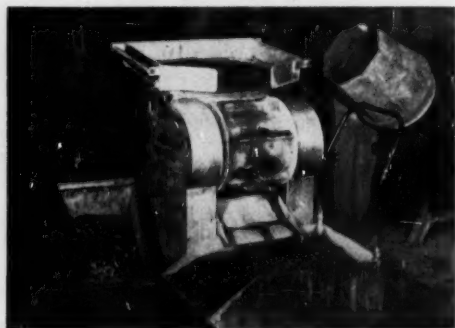
holding of materials or parts for feeding to or during the operation of production machinery.

Among electro magnets—those obtaining their power from fields generated by direct current—the most widely used is still the familiar circular type. But more and more lifting power is being designed into them, and controls to operate them are increasing the precision and scope of their applications. Rectangular and other shapes have been devised for many general and

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## Magnets for Handling in Metal-Working

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**DRUM-TYPE SEPARATOR** speeds handling by automatically removing small parts from abrasive at Remington Rand, Inc. After cleaning in tumbling barrels, parts and abrasive are fed onto face of revolving drum. Abrasives collect in push cart while parts accumulate in tote pan under machine.



**SHEET STEEL SEPARATOR** of type that "floats" sheets—large or small, oiled or embossed, from less than 20 gauge to more than 12 gauge—to feed presses, brakes, shears, other fabricating machinery. Single sheet is easily grasped, danger of cuts much reduced, and dies are protected against double feeding.

specialized handling purposes.

Electromagnets are available in a tremendous range of lifting capacities—from 50 to 60 pounds up to 110,000 pounds. They are built for service under all sorts of conditions. There are models for operation under water; others that will handle red hot or cold steel. Electromagnets can be carried on any handling equipment that has a boom (or equal) and a source of power. Lifting capacity, of course, depends upon power supply, but there are magnets that will handle weights within the capacity of a fork truck (weight of magnet plus weight of load) when a suitable generator is installed on the truck. These have been used principally for handling loose scrap. Use of electromagnets for positioning and holding during machine operations, especially for heavy parts or unusual shapes, is also increasing.

### High Potential For "Permanent" Magnets

It is in "separation", the removal of ferrous particles from non-ferrous substances—and the separation of steel sheets—that an almost spectacular progress has been made over recent months. This application has largely involved "permanent", or Alnico, magnets, in which long-lasting holding power has been achieved. They are "permanent" for all practical purposes.

The four basic categories of magnetic separators are: (1) Magnetic Pulleys, which work with belts of rubber, canvas, or other non-magnetic materials; (2) Magnetic Drums, for installation in any conveying system not using belts, and suitable for handling wet or dry material; (3) Plate-Type Magnets that are frequently submerged in slurry or coolants to remove ferrous particles; and (4) Magnetic Humps or Traps, which can virtually eliminate all tramp iron damage to pumps,

jordans and refiners.

These devices are doing such jobs as: filtering metal particles out of food, drug and allied products; removing tramp iron in all sorts of industrial handling operations; and segregating iron and steel from materials not attracted by magnets.

Other tools incorporating permanent magnets clean machines of chips and turnings; pick up and handle small steel parts; sweep yards and shops clean of fragments—and do a host of similar jobs.

### Good Returns From Scrap Collected

Electromagnets are employed extensively for clearing large yards and extensive areas, in general—such as parking lots, airport runways and highways. One material handling dealer rents out jeeps equipped with magnets for this purpose. The rental fee is nominal; he more than supplements that income with returns from the scrap he collects and sells.

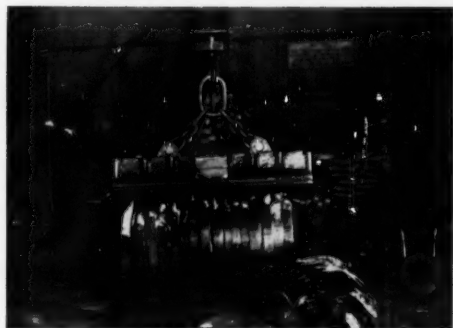
Permanent magnets are used on conveyors to keep work in alignment or to handle light weight parts—for example, from machining to pickling, plating, finishing or shipping areas.

There has just been introduced a magnetic conveyor in which permanent magnets are driven in endless chain around the underside of a table. It is intended for small assembly operations, in which the work can be easily removed from the line of travel simply by moving it toward the operator. Replacing it back in the line is just as easy. The table top is clear except for work in process.

### Sheets "Repelled" for Better Handling

In feeding sheet forming machinery, the removal

*(More on next page)*



**RECTANGULAR MAGNET** on motor driven bridge crane here handles multiple coils of strip steel from storage to stamping department of Eastern hardware manufacturer. Red hot metal can also be carried on such magnets which have thicker bottom plates and which are properly insulated.



**RETRIEVING PARTS** from plating and dip tanks is function of magnetic handling tool. Magnetic section rotates to attract over entire surface. To unload the magnet, a neoprene wiping ring is pushed from one end to the other, where a non-magnetic area causes instant release of entire load.

## MAGNETIC HANDLING

of the top sheet from the pile has been difficult and dangerous because of the adhesion between sheets caused by rust-inhibiting oil. To prevent double-feeding, magnetic separators cause adjacent sheets to separate themselves. The device works on two elementary principles: (1) like poles repel; and (2) poles of a permanent magnet induce opposite polarity in a magnetic material.

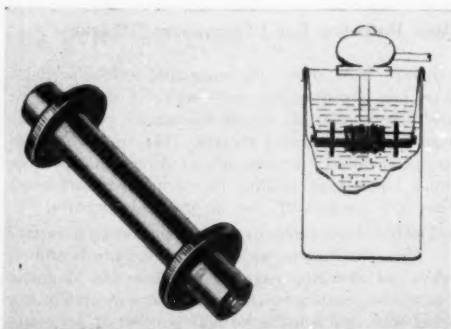
While a stock of steel sheets is, in effect, a solid mass, it is made up of numerous separate sheets. Each pole face of the separator magnet induces poles of opposite charge on the edge of each sheet. Like poles are induced in a vertical direction, repelling each other and forcing sheets to part.

Permanent magnets, too, are finding more uses at operations requiring parts to be firmly secured—as in

### In Metal-Working (Con'd)



**HARD-TO-HANDLE** and precision small parts can be held by magnets carried on overhead conveyors.

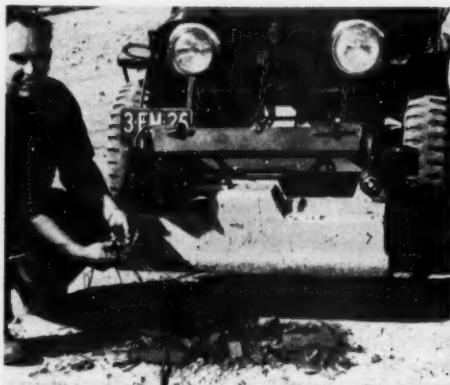


**COOLANT PUMP MAGNET**, suspended under pump intake in tank (as sketched), traps fine steel particles.

### Sweeping with Magnetic Brooms



**MAGNETIC SWEEPER** cleans floors and inaccessible areas of dangerous scrap and valuable small parts. Wiping ring arrangement drops load into container.



**PUNCTURE PREVENTER**—this jeep-carried electro-magnet keeps plant yard and roads safe for traffic. Also suitable for parking lots, on airport runways.



grinding, shaping and shearing—where production is speeded by quick handling of materials directly to the operation and equally as quick removal. (Electromagnets can carry the greater loads of sheet and other steel stock to the production areas.)

#### Attraction of Magnetics Growing

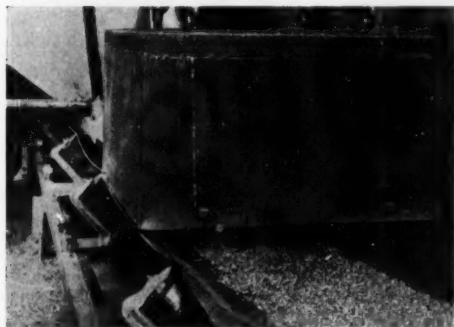
Following are pictures and descriptions of a few applications of magnetic handling. They are intended to show a cross-section—to indicate the extent to which magnetic force is doing a material handling job in a number of industries and how the use of magnets is growing in scope.

The Editors of FLOW will be glad to hear of any handling problems which have been solved by magnets, or to obtain information for readers who may have a task in which magnets might provide the muscles.

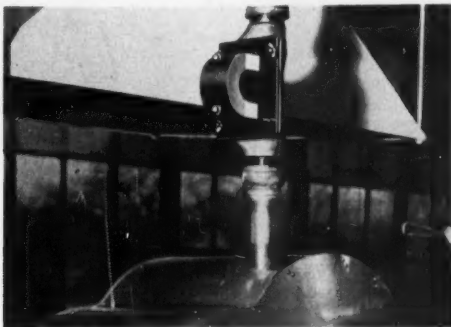
For data and pictures, FLOW thanks the following firms: Basco Manufacturing Co.; Carboloy Department of General Electric Co.; Cutler-Hammer Inc.; Dings Magnetic Separator Co.; Eriez Manufacturing Co.; Homer Manufacturing Co.; Multifinish Manufacturing Co.; The Ohio Electric Mfg. Co.; F. W. Shrader Co.; and Stearns Magnetic, Inc.

(Additional photos on next page)

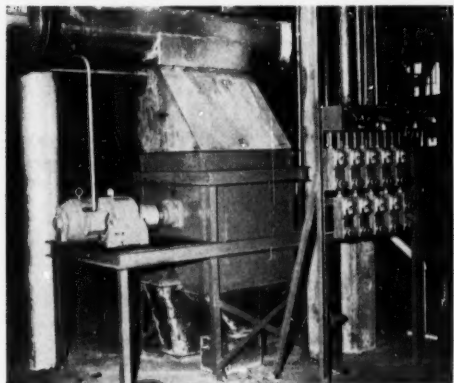
#### Automatic Removal of Tramp Iron



HIGH INTENSITY magnet, over conveyor handling grain, removes tramp iron at belt speeds to 800 f.p.m.



MAGNETIC TRAP in system handling viscous material protects both product and pump against tramp iron.



ENCLOSED drum magnet used with screw conveyor drops metal into front box, product down rear chute.



PULLEY-TYPE separator carries tramp iron to chute, right, while fertilizer drops into grinding mill.

## MAGNETIC HANDLING

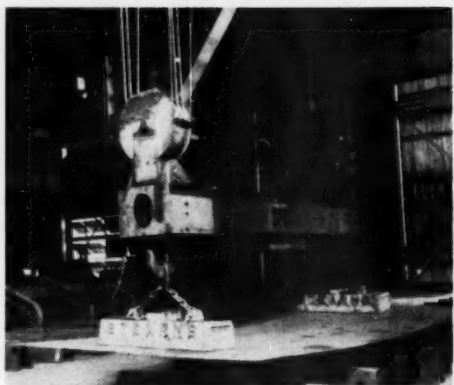
*Continued*

### ----- ✧ Handling Awkward Steel Loads ✧ -----

ALL-PURPOSE lifting magnet for general machine shop and flame cutting operations, handles various sizes of castings, plates, and weldments—a time saver for moving pieces in and out of machines. Lifting capacity depends upon shape of piece, can be as high as 3000 lb.

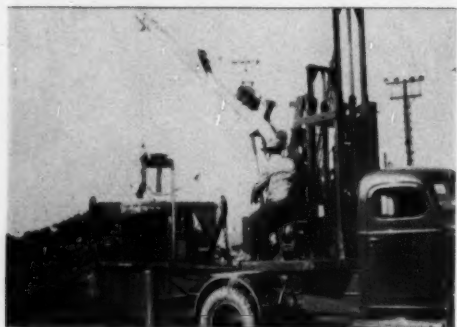


SPECIAL SHAPES of electromagnets, such as this, are designed to handle efficiently such items as heavy structural angles, channels and joists.



TWIN rectangular magnets on a spreader beam transfer hot steel plate from rolling mill run-out to cooling bed at Homestead Works, U.S. Steel.

### ----- ✧ Scrap Loading and Collection ✧ -----



MOBILE truck-mounted crane loads scrap, with a circular electromagnet, into a dump-body yard truck. Gas generators provide power for such equipment.



FORK TRUCK CRANE ATTACHMENT manipulates the electromagnet which loads chips and turnings from smaller containers into accumulation hopper.

You Need Speed to Handle . . .

## Hygroscopic Materials

Here's a simple, fast way in which there is no fuss, dust, or moisture problem.



CALCINED MAGNESITE, received in bags, is deposited into hopper of bag dumper (inset). Operator presses button (photo at right) to raise filled hopper to top where it discharges into feed hopper of mill.

A SIMPLE, efficient handling system has been developed by the Philip Carey Mfg. Co., Plymouth Meeting, Pennsylvania, for quick transfer of a highly hygroscopic material into and out of a pulverizer. The product, calcine magnesite, is received in bags, ground up, and re-packed in bags for shipment to manufacturers of rubber compounds.

Grinding is done in a Raymond Mill. During the early planning, it was decided that volume of production would not be high enough to warrant an expensive, high speed continuous handling set-up. A method of handling which would require a relatively small outlay of money, which would handle the magnesite fast enough to prevent absorption of excess moisture and which would be able to keep the pulverizer operating eight hours per day was sought.

Not only has the system which was finally developed been able to meet all of these requirements . . . it has the added advantage of flexibility which will permit meeting higher production schedules when necessary.

The entire operation requires three workmen. When calcined magnesite is received from suppliers, it is in bags containing from 110 to 140 lb. each, and varies in texture from dust to 1/4 in. pellets.

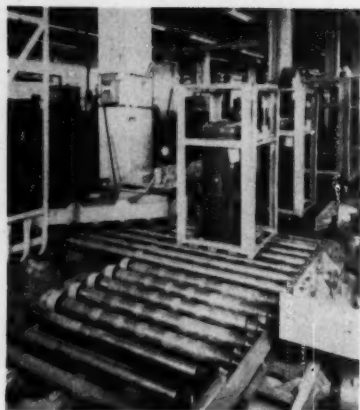
(Continued on page 132)



PULVERIZED MATERIAL flows by gravity from separator into bag. When a bag is filled, operator check weighs it and adds or removes material as required. Then, bags are sewn and palletized by a third man.

# Easy Handling of Heavy or

**A heavy or bulky product need not be hard to move in continuous flow—even though many types of handling equipment and long distances are involved—by G. M. Nicklaw of General Electric Co.**

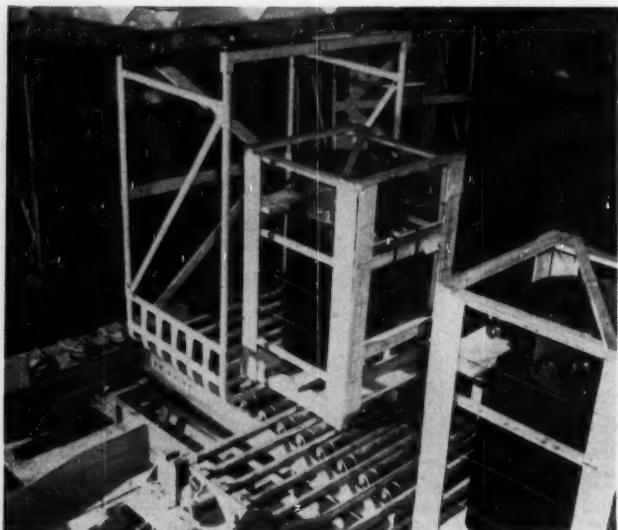


**W**HEN A CONTINUOUS-LINE operation is not feasible—if parts are large and heavy and in-plant travel unusually long or complicated—pile-ups and delays can still be made negligible.

This is shown especially well at the Transformer Division of General Electric Company, in Pittsfield, Mass. Here, seven types of material handling equipment, plus numerous attachments and accessories, are synchronized and coordinated to convey hundreds of distribution transformers per week from production to the storage and shipping area. Smaller units weigh upwards of 280 pounds, larger ones 1,100 pounds or more, and all move continually, without pile-ups.

## **Automatic Transfer from Roller to Overhead Conveyor**

The long travel starts in the crating area, where tested transformers are delivered by a series of gravity



**ABOVE LEFT:** After crating and testing, transformers pass through centering device, onto loading station. **LEFT:** Transfer car rollers rise to mesh with waiting station rollers and deck of overhead carrier. Forward propulsion of transfer rollers and lateral movement of carriage convey load into carrier on diagonal, synchronized with overhead conveyor travel.

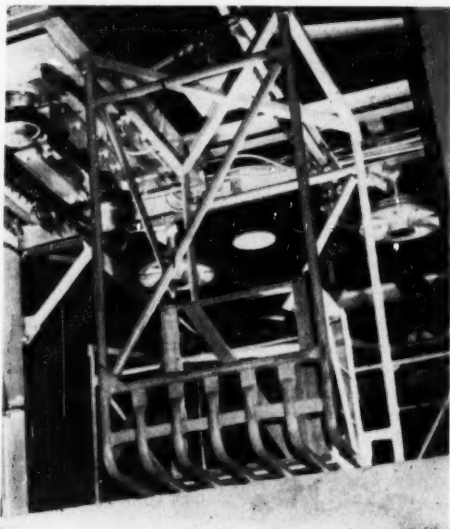
# Awkward Loads

and power roller conveyors. After crating, transformers, still on the conveyor, are power driven through an automatic centering device. From there they continue to the first section of the automatic loading station, called a waiting station, which is a series of rollers on which a transformer rests until the overhead conveyor approaches. At that time, a transfer car, with constantly revolving rollers, rises from below the waiting station to inter-mesh with the rollers of the waiting station and also the tubular bottom of the overhead carrier. Moving at the same speed as the overhead carrier, the transfer car drives the transformer into the carrier in a diagonal direction. Micro switches and electric eyes keep the operation automatic and prevent slip-ups.

It is at this point that the transformers start on the way to the storage area via a conveyor which is 1,275 feet long, has 85 carriers, and is capable of delivering one unit a minute.

At the Shipping Section, where the storage area is located, the overhead carriers are automatically unloaded at a station similar to that in which they

**CROSSING RAILROAD** tracks through a shed, overhead carrier starts long trip to shipping and storage area, where unloading is again automatic.



**STACKING CRANE** handles heavier units, moving them from floor conveyor to storage piles and from storage to shipping conveyors as needed.

were loaded. Then transformers go down a gravity conveyor to a power section and through an alligator switch, which sorts them into three categories onto three floor conveyors. Rollers on these are arranged so that the load is moved to the outside edge for easy handling. Units in the 5 to 15 kva group are put in storage piles by a fork truck having a carriage with four movable fingers. These slip under cross pieces of the wirebound crates to lift two—side by side—at a time. Normal operation is to stack two on two, remove four units with one lift.

Heavier transformers, in the 25 to 50 kva group, are carried to the storage piles by a stacking crane. This equipment, a recent development, consists essentially of a rigid stack suspended from an overhead crane carriage. The stack is equipped with forks, similar to those on a fork truck, which are raised or lowered as required. It can revolve 360 degrees—and reverse over the same angle—to serve both sides of aisles.

Mounted on the stack is an eight-push-button-control panel and a place for the operator to ride. The equipment, capable of lifting two tons and operating in a six foot aisle, has a bridge speed of 350 feet per minute.

For shipping, the stacking crane removes units from the storage piles and deposits them on a series of gravity conveyors leading directly to the car loading area. There, two-wheeled hand trucks are used to take the transformers from the conveyors to the freight cars.



Does the flow planning in your plant specifically cut costs, or does it only minimize one of several quantitative cost indicators, which, according to the author are: The distance moved; the amount of handling; weighted distance figures such as ton-mile; the distance materials move in conjunction with the number of handlings. "None of these", he states, "indicates the cost of handling in an accurate or consistent fashion."

## HOW TO DETERMINE . . .

# The Best Flow-Planning

by John R. Huffman  
Associate Professor, Industrial Engineering  
University of Southern California

**W**HAT is "flow planning"? What does it do? Why is it so vitally important?

Essentially, flow plan is determining in advance, the paths which materials will follow through the plant, and coordinating those paths so that the manufacturing processes may be carried out in the most practical and economical manner. It involves the location of departments with reference to one another and affects machine arrangement considerably. It is easy to see why one text calls flow planning the "core of plant layout."

Considering material movement during the development of block layouts or the planning of arrangement of machines is actually an effort to decrease costs associated with flow by:

1. Reducing the number of handlings.
2. Reducing the distance travelled by materials during production.
3. Eliminating criss-crossing and back-tracking in the paths followed during production.
4. Mechanizing all possible movements.

The above improvements are usually effected by one of two techniques: a. Drawing flow lines for each product on a floor plan showing the proposed layout. (proposals are modified by inspection, i.e. "qualitatively", until the one requiring the fewest back-tracks

and least criss-crossing is obtained); b. Minimizing some numerical or quantitative indicator of the costs associated with flow.

### What Are Costs Associated With Flow?

Generally, the costs associated with flow are those which result from handling, carrying goods-in-process inventory, production equipment idleness and compensation insurance. However, the savings resulting from the reduction of goods-in-process inventory, downtime or hazards are difficult to ascertain except in the most obvious cases. For that reason, these savings are often considered as intangibles in many plant layout projects. The reduction in handling cost alone is utilized quantitatively for comparing alternate layouts. It is important to remember when considering reduction in handling costs, that in some cases, handling costs may increase, but concurrent increases in production actually reduce the cost per unit.

If reduction in handling cost is the usual aim of flow planning, minimizing handling costs is obviously the best "quantitative" technique to use. Time standards, however, are necessary to estimate the money spent for handling. Unfortunately, few companies have them. Therefore, plant layout men minimize not han-

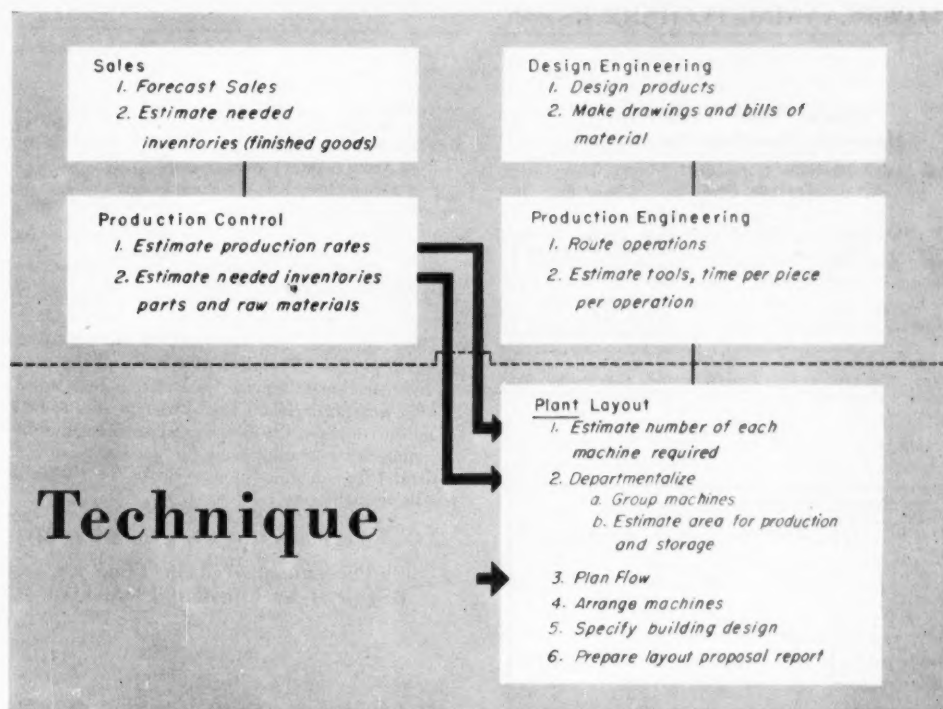


FIGURE 1. TYPICAL FLOW CHART. Essentially, flow planning determines in advance the paths which mate-

rial will follow through the plant. Functions above dotted line are preliminaries, below lines are plant layout.

dling cost, but one of the following four quantitative cost indicators:

1. The distance materials move.
2. The amount of handling.
3. Weighted distance figures such as ton-mile.
4. The distance materials move in conjunction with the number of handlings.

None of these techniques indicates the cost of handling in an accurate or consistent fashion. Here is how the writer arrived at that conclusion:

Consider flow in the most common type of industrial establishment . . . the job-lot plant which uses mobile handling equipment. Experience indicates that the time required for one trip of a mobile handling device (and, therefore, the cost of handling) may be divided into two parts. Part I is a time, which we shall designate as "a", which is independent of the distance moved. It includes the time required to pick up and put down the load and to accelerate and decelerate the mobile handling unit or truck. These are the constant elements of the handling task. Part II of the time required for one trip of a mobile handling device is a time "bx" which is dependent on the velocity of the handling device "b" and the distance travelled "x". This is the variable element of the handling task.

The time to complete any trip may, therefore be expressed as: Time "t" = a + bx

In this equation, a and b are assumed to be constant for the entire plant. This assumption should be reasonable as long as the handling is confined to either warehousing or inter-department transportation.

The time required to move a particular part between subsequent operations in a plant is then:

$$t = (a_1 - bx_1) - (a_2 - bx_2) - (a_3 - bx_3) \dots - (a_n - bx_n).$$

This is the modified question, "How much of the handling time is devoted to the steps (or constant elements of the task) and how much to actual movement?"

#### How Much Is Actual Movement?

Assume that only one type of mobile handling equipment is used within a plant. This is the simplest case. The principles holding true here can be extended to more complex situations alter. Under this assumption, it is possible to consider a single movement as typical of those in the plant. For such single movements by various type of mobile handling equipment, three typical predictive equations are given in the table which follows on the next page.

(More on next page)

## Typical Time Values for Materials Handling Operations

| Type Equipment  | Time in Minutes To Make Round Trip of 2x Feet | Comments   |
|---|---|--|
| 48", Multi-stroke Mechanical Hand Lift Truck, 6" Wheels | $t = .659 + .011x$                            | Data levelled in few cases of exceptional performance; no allowances included. For congested areas increase .659 to .749; for clear areas decrease it to .549. |
| 4000# Electric Walkie Pallet Truck                      | $t = .432 + .0077x$                           | Data not levelled; no allowances added.  |

4000-6000# Gas and Gas-electric Fork Trucks  $t = .644 + .0071x$

Figures are average values for stacking one or two high. Data covers a number of 4000 to 6000# gas trucks. Some studies on gas-electric 4000# trucks. All data levelled and with approximate 10% allowance.

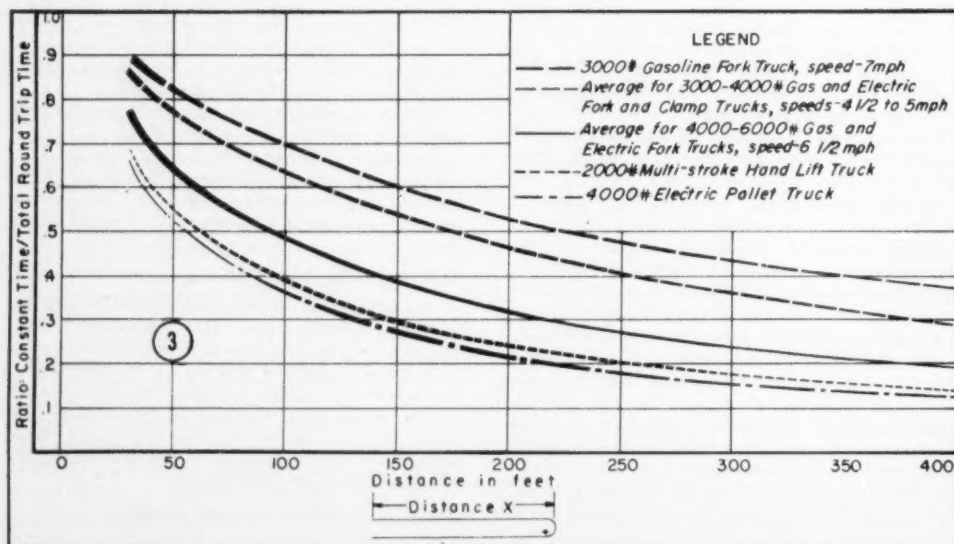
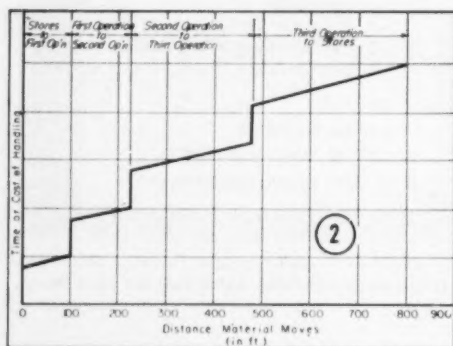
Data for this table made available by Mr. Joseph N. Druliner, Chief Industrial Engineer, Norris-Thermador Corporation.

These equations and some others are plotted in Figure 3 to show the portion of each round trip taken up by the constant elements; pick-up, put-down, acceleration, and deceleration. The heavier portion of each of the curves shows the distances which fall within the recommended operating radii for the equipment.

Careful examination of the curves in Figure 3 reveals the following:

## Percentage of Trip Time Required by Constant Elements

| Type Equipment                                  | Curve | Recommended Maximum Radius of Operation | Minimum Percentage of Time Required by Constant Elements |
|---|-------|---|--|
| 48" Multi-stroke Hand Lift Truck with 6" wheels | B     | 50'-200' (3, 4)                         | 50'-55%<br>200'-23%                                      |
| 4000# Electric Walkie Pallet Truck              | A     | 100'-250' (3, 4)                        | 100'-36%<br>250'-18%                                     |



|   |   |                  |                      |
|---|---|------------------|----------------------|
| Fork Trucks, gas and electric, 4000-6000#, operating speed—3 mph    | C | 250'-300' (4, 5) | 250'-27%<br>300'-23% |
| Fork Truck, gas and electric, 3000-4000#, operating speed—4½-6½ mph | D | 250'-300' (4, 5) | 250'-46%<br>300'-44% |

From these figures it is apparent that 20% or more of the time required for any one trip is taken up by constant portions of the task . . . if equipment is operated as recommended. The exact percentage depends on the distance travelled and may be as high as 80%.

### Consideration of Equipment Utilization

The preceding discussion has assumed implicitly that each piece of equipment is used at all times. In actual practice however, handling equipment in a plant is idle or engaged in non-productive activities during a certain number of hours per day. This condition can be represented by an equipment utilization factor "k" where:

$$k = \frac{\text{hours per shift}}{\text{hours of production work per shift}}$$

Assuming that the cost of operating a handling device is expressed in dollars per hour (as is customary), the time per trip on which cost should be based is:

$$t = k(a + bx)$$

If k is constant in all departments of the plant, equipment utilization presents no problems. However, a ration delay study in one Los Angeles plant revealed values of k varying from 1.25 to 2 if the most variable departments, shipping and receiving, are excluded. This variation is probably due to the fact that trucks from a central pool are assigned to production departments for use as the department foreman sees fit.

It appears, therefore, that the activity of a mobile handling device can be described as follows:

### Summary of Handling Equipment Activity

| Activity      |    | Per Cent of Time      |                      |
|---------------|----|-----------------------|----------------------|
|               |    | Considering Idle Time | Neglecting Idle Time |
| In Motion     | bx | 16-64                 | 10-40                |
| Constant Time | a  | 64-16                 | 40-10                |
| Idle          | k  | 20%                   | 50%                  |
|               |    | 100                   | 100                  |

FIGURE 2. TOTAL HANDLING COST is affected by time or cost of handling and distance material moves.

FIGURE 3. Proportion of round trip time required by constant elements of pick-up, put down, acceleration and deceleration for several types of equipment.

FIGURE 4. An example of a circle diagram [see text].

To summarize this discussion of flow in a job lot plant using mobile equipment, it can be said:

1. The cost of handling (or time to handle) any part through the production process is a step function.
2. The steps represent the constant elements of the handling task . . . pick-up and put-down, acceleration and deceleration. The variable element is the distance of movement.
3. The relative portion of the total handling cost assignable to the constant and variable elements depends on the distance of movement.
4. The cost of any specific move may depend on the department in which it is performed because equipment utilization appears to vary.

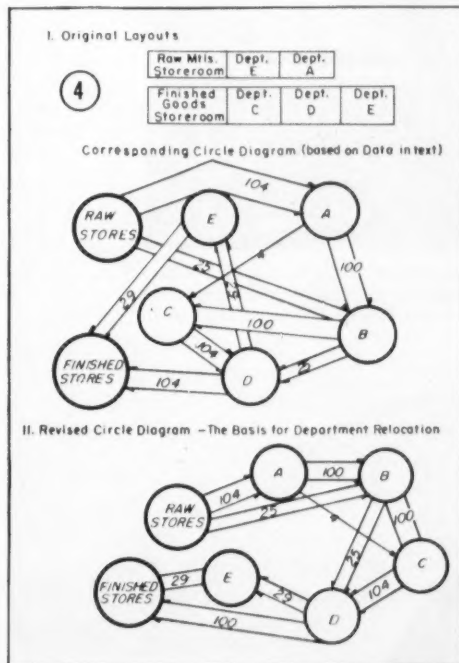
### Quantitative Flow Planning Techniques

Following, are some theoretical considerations in planning flow to minimize the distance moved. Comparisons of the type which will be discussed are usually presented as a supplement to the other dollars and cents comparisons relative to a re-layout. Let us assume distances involved in our planning are as follows:

| Alternate Layout   | Existing | Proposed |
|--------------------|----------|----------|
| Distance Travelled | 1000 ft. | 500 ft.  |

From the discussion of the flow in a job-lot plant, it is apparent that the distance of the individual trips

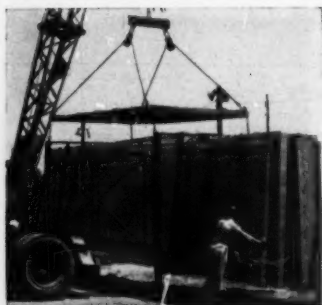
(Continued on page 78)



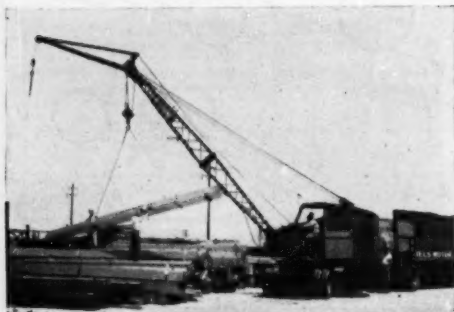


## The Production Line

UNIT LOAD of large sections arrives in collapsible rack, is handled by matching frame on regular boom of tire-mounted crane.



**EFFICIENT STORAGE** is second purpose of racks, from which parts are moved directly to start of fabrication.



**S**HORT PRODUCTION RUNS, a wide variety of models, and numerous special orders are conditions which can, ordinarily, make good material handling—and high production efficiency—exceedingly difficult to achieve in metal fabrication or assembly operations. Fruehauf Trailer Company, in Fort Wayne, Indiana, has all of these production problems, but full utilization of the unit load principle in handling keeps efficiency at a high level.

Most of the firm's material handling occurs in the yard, which is considered the start and finish of production lines. Here, wherever it is at all possible, materials and parts are kept in unit loads. To handle them, wide use is made of trailers and pneumatic tire mounted cranes, which have been especially adapted and equipped with accessories to lift and carry bulky loads, large metal sheets and structural members. Jib-like arms, for example, have been attached to the ends of crane booms so that large frames and other highway trailer sections can be swung freely on high lifts, without danger of damage. Grabs and slings have been devised to handle panels and long bundles of structural members, respectively, as well as lumber and other materials.

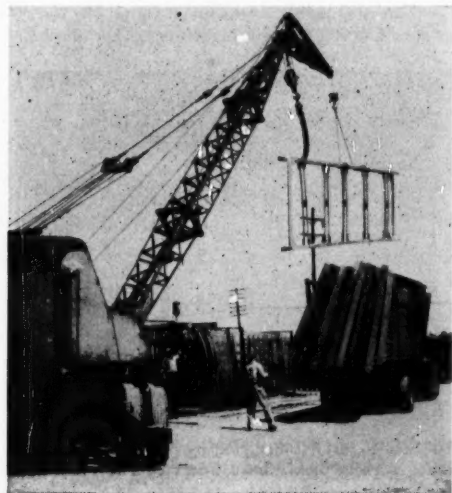
A rectangular frame, with chains and hooks at each corner, enables a crane to handle the largest single

**BUNDLED** aluminum floor sections for refrigerator bodies, each containing sufficient material for an entire trailer, are grouped together by model numbers.



## Starts In The Yard

load, the key unit, in the handling system. This is a collapsible rack in which kits of stainless steel or aluminum trailer body parts are shipped on highways and handled within the yard. A kit consists of an entire assembly, ready for fabrication. The rack-load comes from the mill on a trailer especially adapted for it. When received in the yard, an entire kit is lifted from the trailer by crane and set in the storage



EXTRA ARM added to the standard boom extends usefulness of the crane by allowing the handling of full-length frames without danger to parts or crane.



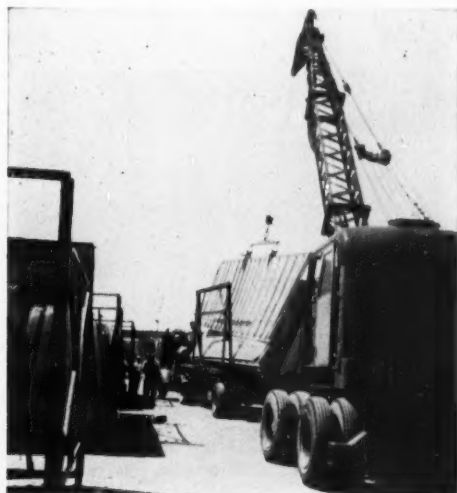
STEEL-STRAPPED PACKAGES of lumber, mill-cut for each model trailer, speed handling through receiving, storage and production.

area. When the rack is emptied, it is folded. Then one trailer is tied on top of another, and two trailers plus two racks make the return trip to the mill. Similar frames are also used for mixed loads of panels and frames that may be required for small numbers of assorted trailer assembly models.

When the fabrication section of a production line

*(Continued on page 87)*

SEMI-AUTOMATIC GRAB, in combination with boom extension arm, handles large side panels onto a yard trailer for delivery to an inside assembly line.





IN-PROCESS handling of fragile, uncured concrete blocks. Spring cushioned frame and rubber tired wheels protect against jars and vibration.

**W**HERE DOES the hand lift truck fit best in a company's material handling set-up? How can the most economical use be made of this type of equipment? And what are the features of such a truck that should be considered before a selection is made for a department—or for use throughout a plant?

Answers to these questions can help a purchasing agent to procure equipment that will safely handle the maximum amount of material, in the shortest possible time, in the largest number of applications around his company.

The Association of Lift Truck and Portable Elevator Manufacturers suggests the following jobs for which the hand lift truck is particularly suited.

**1. Short Hauls:** Hand lift trucks can do a good job of moving loads for short, horizontal distances. For example—moving materials from receiving to nearby storage; handling from storage to nearby machines, from machine to machine within departments, and between departments relatively close to each other.



ORDER PICKING by hand lift truck, teamed with power truck in background. Smaller truck assembles loads on short trips, larger one does the long hauling.

## what the purchasing **Hand**



SERVING MACHINES, hand lift truck and special racks handle four heavy beams of rayon yarn at a time in a rayon manufacturing plant.

**2. Infrequent or Irregular Hauls:** When only a few moves are made in any operating period, or when there are idle periods between moves, a hand lift truck can do the job without tying up power equipment. Let a hand lift truck do the waiting. Frequency of use has no effect upon its operation; upkeep costs virtually nothing.

**3. Close Quarter Handling:** Hand lift trucks can do a fine job in really tight spots. They work in



PRODUCTION LINE handling by hand lift trucks in a lumber working plant. Small trucks can be used individually or towed in a trailer train as might be desired.

and out of freight cars or trucks, large and small; in narrow aisles; on small freight elevators; and between closely set machines—in fact, anywhere that a man can squeeze.

A black and white photograph showing a person standing in a room filled with large, ornate, tiered stands. Each stand holds numerous small, round objects, possibly food or decorative items. The person is standing in the center, looking towards the camera. The room is dimly lit, with the stands being the primary light source.

✓

Will truck travel over sills, gratings, tracks or on the ground? .....

73

## HAND LIFT TRUCKS



MOVING DELICATE material in process, this lift truck is pushing a load of green cores into the core oven.

HANDLING in confined area illustrated by truck delivering load into freezer of food processing plant.



IN BALING piece goods in a textile mill, lift truck delivers skid loads of goods right into the press. Note special skids and reels of steel strapping which complete bale after the lift truck has been withdrawn from the press.

*Continued*

vored, hand lift trucks will probably be able to do the lifting and carrying within safety limits. They are light in weight; up to 90 percent of the weight of the loaded truck is in the load itself.

**6. In-process Handling:** Hundreds of special applications of hand lift trucks have been made for in-process handling. These are jobs where the truck becomes part of the operating equipment, moving the material through the operation. They may work with racks, bins or platforms which are currently in use or might be designed to increase production capacity.

As examples, a meat processor hangs hams on special platforms, built like a Christmas tree, which are carried in the curing ovens by hand lift trucks; makers of cement blocks use spring mounted trucks to move blocks into the curing process; and producers of pharmaceuticals use special racks and hand lift trucks to move materials into sterilizers.

### General Characteristics

Familiarity with the general specifications of hand lift trucks, which follow, will help a buyer to select equipment most likely to provide full satisfaction.

**Mechanical Lift Types:** The least expensive type is the single stroke, mechanical lift truck. One stroke of the steering handle lifts the load to full height. This is advised for light loads. For heavier loads, consider the multiple stroke type. It takes several strokes of the handle to elevate the load but less effort on the part of the operator.

**Hydraulic Lift Types:** In this equipment, a hydraulic cylinder and pump raises the load. It's more

*(Continued on page 76)*



Towmotor dumps pot of annealed castings into shakeout hopper at Cleveland plant of Eberhard Manufacturing Co.



## BOTTOMS UP!

Here's to TOWMOTOR, the fast and economical way of handling materials! Easy, too, because TOWMOTOR Power Steering reduces steering effort 80%! And speaking of power, the new "Cushioned Power" Diesels are as gentle and economical as ponies—with all the terrific strength of wild horses! There are dozens of other features that make special jobs like the one above, mere routine, and make *your* job twice as important to the boss. Send today for free booklet, "What Makes It Tick?" TOWMOTOR CORPORATION, Div. 808, 1226 East 152nd Street, Cleveland 10, Ohio.



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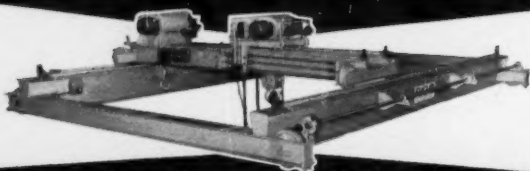
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FLOW • AUGUST, 1953

75



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SELECT A

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(Above)

Model D3 1/2 S Maximum Capacity 3 1/2 cu. ft. 16 gauge tray, all welded, no rivets, double lapped at corners. Steel channel legs. V-shaped front braces and brace support.

(Right)

Model CSW Maximum Capacity 5 cu. ft. 16 gauge tray, all welded, no rivets, double lapped at corners. Heavy-duty malleable wheel guard.

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STERLING Quality

# Sterling

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## HAND LIFT TRUCKS . . .

(Continued from page 74)

expensive than the mechanical type but provides a smooth, effortless lift to the heaviest rated load. A boy can operate one.

**Capacities:** Both mechanical and hydraulic types are made in a wide variety of load capacities. Smaller sizes will handle up to 1000 pounds. There are larger sizes for 2000 pounds and up. Trucks are frequently built for capacities to 10,000 lbs.—for short hauls.

**Widths and Lengths:** Widths are usually classified as "narrow" where the truck itself is 16 to 20 inches wide. They are considered "wide" where they run from 22 to 30 inches. If tote boxes are to be moved in narrow aisles, the narrow type will slide loads into widths of from 18 to 20 inches. Wide models will, of course, pick up standard skids or pallets.

**Lengths vary greatly.** Very short trucks are made to handle compact, heavy loads such as tin plate. Normal lengths of from 36 to 48 inches accommodate the average skid or pallet. Special trucks may be made in lengths up to six or eight feet.

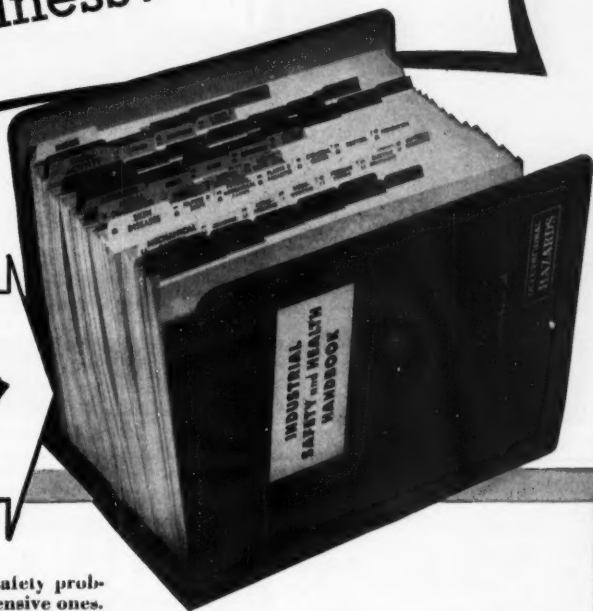
**Load Carriers:** Hand lift trucks work equally well with skid platforms (including racks, boxes, bins, etc.) and pallets. If your plant uses pallets exclusively, consider a pallet hand lift truck.

**Running Gear:** The sort of wheels with which your trucks are to be equipped should be determined by your floors, the load to be carried, and the type of service. Wheels may be cast iron, semi-steel, rubber tired, or plastic, and most of them are supplied with anti-friction bearings. Consider accessibility of lubrication points for wheels (as well as other moving parts on the truck). Rubber tires will provide the greatest shock protection to loads. If the truck is to pass through areas where metal chips and other litter may damage rubber, metal or plastic wheels should be considered.

Photos and data courtesy Association of Lift Truck and Portable Elevator Manufacturers.

# Do You Have Safety Problems in Your Business?

*Here's the  
Answer!*

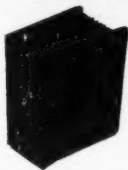


If you employ people, you *have* safety problems. And they can be mighty expensive ones. Injuries and illnesses cost you money two ways: 1) work-sustained disabilities are compensated for, according to your state law, out of your pocket; 2) absence from the job costs even more in lost production, training re-placements.

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The Industrial Safety & Health Handbook is bound in a heavy-duty binder—and it has to be. It's made for continual, rough use: you'll soon find it the most valuable book on your desk. Its nearly 300 pages are indexed and color-tabbed for fast reference. You can get an immediate answer to any safety or health problem that arises. If you have no safety engineer, you'll need this Look more than ever.



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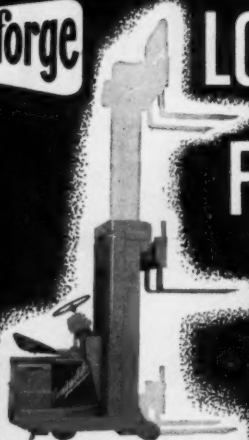
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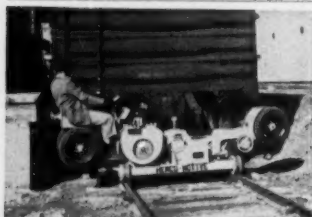
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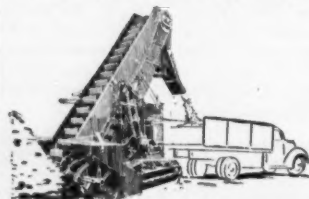
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## FLOW PLANNING . . .

(Continued from page 69)

is of extreme importance. Suppose this plant uses trips, each 200 ft. in length. Using time study data fork trucks and the process requires only five round trips, each 200 ft. in length. Using time study data of Table I the material handling time would be:

$$t = (.644) - (.0071) 200 = 10.30 \text{ min.}$$

After the re-layout, the handling time would be:

$$t = 5.644 - (.0711) (100) = 6.77$$

the reduction in handling cost is:  
10.30-6.77

— or 34%

10.30

On the other hand, if 10 pick-ups and put-downs are necessary, and if the trip length is 100 ft. initially, 13.54 min. would be required for this handling. Reducing the distance of travel to 50 ft. per trip would reduce the time required to 10 min., a saving of 26% . . . much different from the 34% of the preceding case. The conclusion is that distance is not a consistent indicator of handling cost or handling cost reduction.

Suppose that the trips are performed by trucks assigned to areas of the plant. Since the equipment utilization factor  $k$  will probably vary, the cost per trip will depend upon which truck transports the material.

Since the data upon which this conclusion rests represents only a few plants and is based primarily upon operations wherein materials are handled from storage to a production line or vice versa, one can conclude only tentatively that the distance material moves is a poor function to be minimized by flow planning. This idea can be validated by further research into: the values of  $a$  and  $b$  and how they are affected by the load (size weight, stability) equipment and operator variability, and layout variables as aisle width, number of intersections and congestion; whether equipment is operated in accordance with recommended maximum operating radii; the equipment utilization factor  $k$ .

Minimizing distance to im-

prove flow is even less valid when several types of handling equipment are used or when parts to be moved vary substantially in size or density. Consider the case of a plant that produces both counterweights and pistons for fork trucks. Since a few of the former or many of the latter constitute a load, the number of trips required to transport enough of each for 250 four-cylinder trucks will be quite different. Adding the distance travelled by different items then is meaningless in the general case.

### Minimizing Travel

Finally, it should be noted that minimizing travel is a completely deterministic technique and does not consider the fact that distances, the constants  $a$  and  $k$  and the leads are, in fact better described by distributions.

While some of the preceding operational criticisms are not insurmountable, they reinforce rather than vitiate the previous conclusions that distance is not a good indicator of handling costs and that minimizing dis-

tance is not a satisfactory quantitative technique for planning flow.

### Planning Flow to Minimize Handling

This deterministic method of planning flow assumes that handling cost is proportional to the amount of materials moved between departments rather than to the distance between them. Three common methods are described below:

#### Method 1.

When a company's products are all small units (screw machine products for example) of very similar size, the amount of handling is approximately a function of the quantity or weight of each part produced in some time periods. The amount of handling between any two departments is the total number of pieces or weight moved between them. For example, in a very much simplified layout problem involving the three parts shown in the following summary:

(Continued on next page)

## Buda Starts Road Show

**I**NITIAL PERFORMANCE of the "Buda Magic" Show, in Chicago, on July 15, inaugurated a nationwide tour which will bring it to the cities of all principal Buda distributors. The show featured the "world's most beautiful lift truck operators" and magician Ravel in a theatrical demonstration of the company's new FT Fork Lift Truck line. The extra "talent" was special to the Chicago opening, which was staged at Lift Truck Service Company.



Concurrent with the start of the show was the release of the Buda "Fact Book", which is offered as a driver's eye view of the operation, construction and servicing features of the FT series. This thirty six page book employs the photo sequence technique of the automotive industry to spotlight basic operating features and emphasize improvements.

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## FLOW PLANNING

*Continued*

### Operation Sequence Summary

| Operation Number | Part X  | Part Y  | Part Z  |
|------------------|---------|---------|---------|
| 1*               | Dept. A | Dept. A | Dept. B |
| 2                | Dept. B | Dept. C | Dept. D |
| 3                | Dept. C | Dept. D | Dept. E |
| 4                | Dept. D | Dept. E |         |
| 5                | - - -   |         |         |
| Pieces per month | 300     | 800     | 750     |

The amount of handling between departments during the specified time periods would be as shown in the table which appears at the right.

Obviously, department D and E should be closest together; other desirable adjacent department listed in order by the amount of handling between them are C and D; A and C; B and D; A and B; B and C. This can be

seen visually if the Circle diagram or traffic pattern of Figure 4 is prepared.

### Method 2.

An authority suggests that the ease of movement for each part be classified numerically by a geometric series. If  $\alpha_1$  represents the classification value for any part, its handleability would be

### Amount of Inter-Departmental Handling (In Pieces)

| AMOUNT OF HANDLING    |                     |   |     |     |                    |
|-----------------------|---------------------|---|-----|-----|--------------------|
| From Machine or Dept. | To Machine or Dept. | A | B   | C   | D E                |
| A                     |                     |   | 300 | 800 |                    |
| B                     |                     |   |     | 300 | 750                |
| C                     |                     |   |     |     | 800<br>300<br>1100 |
| D                     |                     |   |     |     | 800<br>750<br>1500 |
| E                     |                     |   |     |     |                    |

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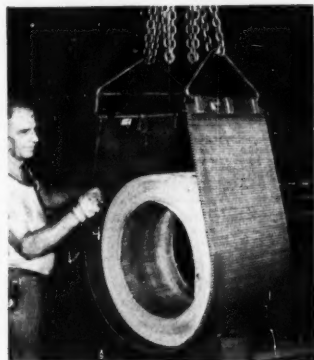
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( $\alpha_1$ ) (weight) or ( $\alpha_2$ ) (number of pieces). The total handling between any two departments would be the sum of the handleabilities for all parts moving between them.

Method 3.

A third approach to measuring the amount of handling between departments is the pallet- or trip-load technique. In it a pallet- or trip-load of each item is estimated; the handling between two departments per time period equals:

$$\sum_{i=1}^n \text{Units of product "i" to be moved} \\ \div \sum_{i=1}^n \text{Units of product "i"/pallet}$$

If the table, "Operation Sequence Summary" is supplemented by the following information:

### Estimated Loads

|                 | Part X | Part Y | Part Z |
|-----------------|--------|--------|--------|
| Pieces per load | 3      | 200    | 50     |
| Loads per month | 100    | 4      | 25     |

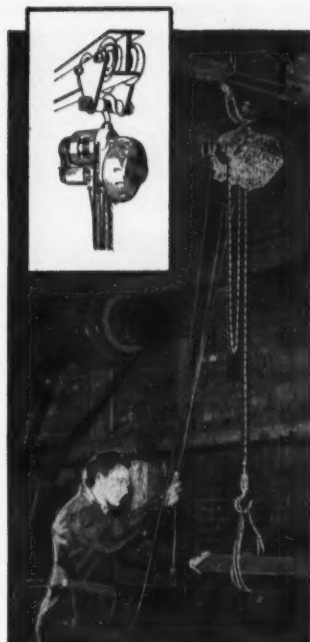
The amount of handling between departments (per time period) is as follows:

### Amount of Inter-Department Handling (in Trip Loads)

| NUMBER OF LOADS MOVED    |                     |     |     |     |     |
|--------------------------|---------------------|-----|-----|-----|-----|
| From Machine<br>or Dept. | To Machine or Dept. |     |     |     |     |
|                          | A                   | B   | C   | D   | E   |
| A                        |                     | 100 | 4   |     |     |
| B                        |                     |     | 100 | 25  |     |
| C                        |                     |     |     | 100 | 4   |
|                          |                     |     |     | 4   | 104 |
| D                        |                     |     |     |     | 4   |
|                          |                     |     |     |     | 25  |
|                          |                     |     |     |     | 29  |
| E                        |                     |     |     |     |     |

Now C and D should be closest together, but contiguity for A, B and C is almost as important. B, D, and E should be adjacent, but this relationship is of secondary importance.

From the preceding examples it should be apparent that placing departments together to minimize the amount of handling is nothing



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## FLOW PLANNING

*Continued*

more than a variation of the technique of minimizing the distance moved. The amount of handling is simply a weighting factor—the one needed to account for variations in the size and density of the items transported. Furthermore, since it is statistically deterministic, the technique does not consider variability in the loads. Finally since distance does not appear, it is not really quantitative.

It should be noted, however, that the amount of handling approach is a useful one for selecting the type of handling equipment to be used because it clearly defines the amount of material traveling over each route through the plant. It will also point out potential production control problems and desirable product simplification.

### Planning Flow to Minimize a Weighted Distance Function

This technique is a logical outgrowth of the two preceding. It

presumes that the distance a part moves multiplied by one of the amount of handling measures just discussed is a good indicator of handling cost. While this procedure is better than either of those discussed, it still will not indicate the costs of handling either consistently or accurately since it includes the distance factor with all of its drawbacks.

### Planning Flow to Minimize both Distance of Movement and Number of Handlings.

This is the classical approach of motion and time study with its process charts, old and new, and its summary like that shown below:

|                      | Present Layout | Proposed Layout | Saving |
|----------------------|----------------|-----------------|--------|
| Number of Handlings  | 100            | 75              | 25     |
| Distance Moved (Ft.) | 3000           | 2000            | 1000   |

This flow planning technique considers both the constant and

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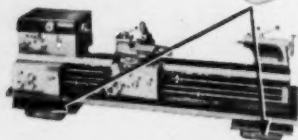
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variable elements of handling cost. On the other hand the comparisons suffer:

1. Because there is usually no indication of how many feet of travel equal one pick-up and visa versa
2. As a result of the difficulties in measuring distances cited before
3. Because the amount of handling concept is frequently neglected.

#### A Recommended Deterministic Technique for Flow Planning.

Any flow planning technique, if it is to consider handling costs correctly, must include:

1. The step function nature of handling costs
2. Variations in equipment utilization
3. The amount of handling factor
4. The average portion of the equipment capacity used on each trip.
5. The cost of operating different types of handling equipment.

A function which considers these factors and which could be minimized to minimize handling costs is:

$$\text{Cost of handling between successive operations "h}_i\text{"} = \frac{(fk c_1)}{ed}$$

$$(a + bx) \quad i = n$$

$$\text{Cost of all handling} = \sum_{i=1}^n h_i$$

wherein:

$a + bx$  = time for a trip of length  $x$

$c_1$  = cost/hr. of operating the type of handling equipment used.

$d$  = average per cent of capacity used.

$e$  = appropriate amount of handling measure

$f$  = number of parts to be moved

$k$  = equipment utilization factor

An equally valid function would be obtained by establishing a distance equivalent of constant time  $(a/b)$  for each type of handling



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## FLOW PLANNING

*Continued*

equipment. This equation would then be:

$$\text{Measure of handling between successive operations "H}_1 = \frac{(fkc_2)}{ed}$$

$$(a/b + x)$$

$$\text{Measure of total handling} =$$

$$\sum H_i$$

$$\sum H_i$$

$$\sum H_i$$

wherein:

$a/b + x$  = a measure of handling (in feet)

$c_2$  = (cost/hr.) (average speed in hours/ft.) for the type of handling equipment used

c, d, f and k are as noted above

The latter function is probably the most practical of the two until time standards are available.

There are four common and widely described quantitative techniques of flow planning which at-

tempt to minimize, respectively, the distance materials move, the amount of handling, a weighted distance unit, and the two variables of distance and number of handlings. It appears that the first three of these are not good approximations of the handling costs they purport to indicate because each neglects either the constant or the variable portion of the handling task. The amount of handling concept is not a quantitative technique at all but a weighting device which insures that each part handled is given its proper consideration. It can be used as such, to eliminate one common criticism of the minimization of distance technique.

The technique of minimizing both distance and number of handlings, while it considers both elements of the handling task, does not consider them on a common scale. This, and a tendency to forget the amount of handling weighting, render it inadequate for planning flow quantitatively.

None of the techniques recognize the variation so common in

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industry. A theoretically more accurate quantitative technique has been presented. It, however, cannot be used with complete assurance, and plant layout theory will develop slowly until research is carried out in the following areas:

1. Handling time standards and the effect of environment and human factors on them
2. Equipment utilization
3. Equipment capacity utilization
4. Maximum operating radii for equipment

If research in these areas confirms the tentative conclusions drawn from the limited data in this article, it should be directed toward determining the variability in each area and replacing the averages in the recommended deterministic flow planning techniques with the appropriate distributions.

While conclusions have been drawn about certain flow planning techniques in this article, the most striking fact it illustrates is the lack of data about plant layout. There simply is not enough factual, specific information to answer many

of the questions that arise.

The comments presented in this article represent an effort to bring layout men face to face with plant layout theory. It is hoped that those who disagree or who would suggest other approaches to the flow planning problem will communicate with the author.

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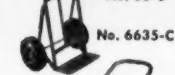
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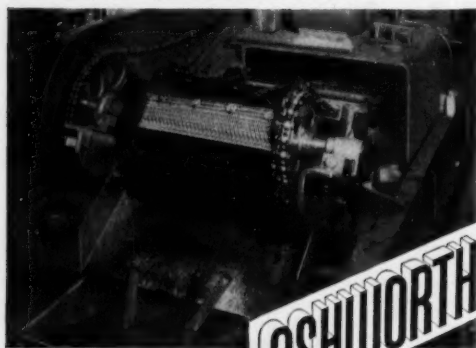
The author wishes to express his appreciation to Mr. S. A. Weart, whose suggestions were a starting point for the general analysis of flow in a job-lot plant, and to Mr. J. N. Druliner of Norris-Thermador Corporation, Los Angeles, for permitting the use of his time study data on handling equipment operation.

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(Continued from page 71)

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*FLOW thanks Mr. Leonard Sosinski, Material Handling Engineer at Fruehauf, for his cooperation in providing this information.*



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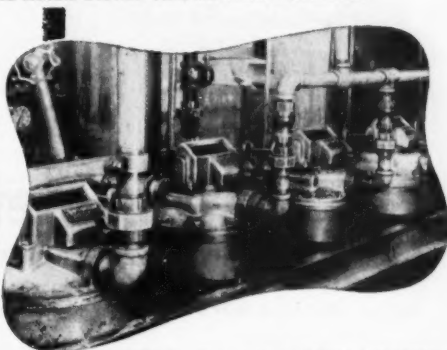
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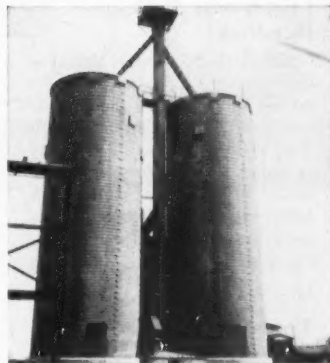
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A brochure describing the use of Cargotainers, collapsible wire mesh containers, to cut material handling costs is available from Pittsburgh Steel Products Company. The 8-page booklet is illustrated to show specific uses for Cargotainers in a wide variety of industries. Case histories and complete technical information are included.

Circle 198 on Reader Service Card

### **General Catalog:**

Fab-Weld Corporation has published Form No. 31, which is a 31-page catalog illustrating more than 100 items manufactured by the company. Among the items described and pictured are: skids, pallets, stackable pallets, skid boxes, Return-O-Tainers, racks, trucks, trailers, dump hoppers, car plates, truck plates and special equipment.

Circle 199 on Reader Service Card

### Industrial Truck Line:

Publication of six bulletins covering the complete Standard Sky-lift "CF" line of riding-type electric industrial trucks is announced by Automatic Transportation Company. Detailed specifications of all the trucks in the line, having capacities from 1000 to 4000 pounds, are included. Outstanding features are pointed out.

Circle 200 on Reader Service Card

### Battery Specifications:

C & D Batteries, Inc., has released Bulletin IT-520, which covers the company's complete line of industrial truck batteries and gives such details as dimensions, wet and dry weights, types of containers and capacities at the 6 and 8 hour rate.

Circle 201 on Reader Service Card

### Roller Skid:

A catalog sheet from Stokvis Edera & Co., Inc., describes the company's unique Servus roller skids, which are used to move heavy machinery. Capacity of a single skid is 80 tons, and caterpillar action is said to make moving easy even on cracked and uneven floors.

Circle 202 on Reader Service Card

### Drop-Bottom Boxes:

A two-color illustrated booklet showing different units in the Work-O-Matic material handling system has been published by The Union Metal Manufacturing Company. On-the-job photos show material positioning with bin boxes and gravity-fed hoppers, and tiering, storing and dumping with multi-duty boxes and trays.

Circle 203 on Reader Service Card

### Case Studies:

A group of eight new studies has been made available by American MonoRail Company, and these studies may be added to the company's original Case Study File of Engineered Applications which show typical monorail installations.

Circle 204 on Reader Service Card

### Circuit Breakers:

The application of AB-1 circuit breakers to reduce downtime and maintenance is discussed in Booklet B-5456, available from the Westinghouse Electric Corporation. Actual cases show how the circuit breakers result in improved continuity of operation. Complete design and operating details are provided, and typical applications for each of the seven different types of enclosures are given.

Circle 205 on Reader Service Card

### Self-Adjusting Dockboard:

A bulletin from Dockboards Incorporated gives complete details on this company's Hi-Lo self-adjusting dockboard, which is said to be completely automatic and operates without power. The dockboard operates on a "leverage and counterweight" principle which automatically brings the ramp into position when force is applied to the operating arm by the truck bed or bumper.

Circle 206 on Reader Service Card

**OVER 5000 TIMES  
... WITNESSED  
BY 10,000  
PEOPLE**



**self-centering STAK-MOR stacking pallets**

In the 1953 Materials Handling Show at Philadelphia, with an estimated booth attendance of 10,000 people, two professional models, with little training in fork truck operation, demonstrated self-centering STAK-MOR Stacking Pallets. Not once in over 5000 times during the week-long show did STAK-MOR Pallets fail to align themselves perfectly! If you have a warehouse, you can use STAK-MOR... so send for the complete story... there's no obligation.

**WRITE FOR BULLETIN NUMBER 35**

**STAK-MOR INCREASES  
STORAGE SPACE BY 200%...  
... REDUCES MATERIALS  
HANDLING TIME BY 1/2!**

#### **STACKS**

- CRUSHABLE ITEMS
- HEAVY PIECES
- IRREGULAR SIZES
- ODD SHAPES

**STAK-MOR Sales Co.**  
1931 OLIVE STREET ST. LOUIS 3, MISSOURI

Circle No. 113 on Reader Service Card for more information

## 50 Years of Trucks:

The current issue of Clark Equipment Company's house publication continues with the story of the company's growth in the last 50 years. It describes some of the many special attachments which were developed to meet many particular needs. Also included are stories about the newest members of the Clark family—Ross Carrier Company and Michigan Power Shovel Company. Circle 221 on Reader Service Card

## Continuous Feeder:

A bulletin from Richardson Scale Company pictures and describes the Richardson constant-weight continuous feeder. The bulletin lists specifications for the two models available—the 9-inch and the 18-inch (stream width) sizes. It describes the automatic regulating gate, special inlet opening, instruments, electrical equipment and other basic parts and accessories. Circle 222 on Reader Service Card

## Dual-Duty Hoists:

Bulletin 880 from Robbins & Myers, Inc., Hoist & Crane Division, describes this company's dual-duty hoists with high-low speed control. Included are complete descriptions, photos and specifications.

Circle 207 on Reader Service Card

## Truck-Height Adjuster:

Literature from Rowe Methods, Inc., describes and illustrates the company's Adjust-A-Truck, a unit which is said to be ideal for firms which do not have adequate room on their docks or in front of their docks for adjustable dock ramps. Unit is set into the pavement in front of the dock and, by means of an electric-hydraulic system, adjusts each vehicle to dock height. Circle 208 on Reader Service Card

## Industry Ideas:

"Industry Ideas" is a publication available from the consulting engineering firm of Wheeler Associates, Inc. The current issue contains cost-cutting ideas on material handling, as well as a check list designed to help plant personnel evaluate their handling systems.

Circle 209 on Reader Service Card

## Centralized Truck Lubrication:

Mercury Manufacturing Company offers the 4-page Alemite Bulletin No. 34-13 which describes and illustrates the advantages of Alemite Accumeter centralized lubrication as applied to the Mercury Yak, Model 430 fork truck. Circle 210 on Reader Service Card

## Twyman "Promoted" At Yale & Towne

Not quite accurate was the title FLOW last month gave to Mr. Elmer F. Twyman of The Yale & Towne Manufacturing Company. The word "President" should have been preceded by the word "Vice". It couldn't happen to a finer gentleman, but we like Mr. Gilbert W. Chapman, Yale's very active President, too, and certainly don't want anyone to think he's ready to "hang up his spikes".

**none Better**



**SKID BOX**  
Specially designed for use with modern stacking and handling equipment. Can be equipped with cover.



**STACKING BOX**  
Panels of strong, durable webbing with outside framework.



**BOX TRUCK**  
Efficiently handles light, bulky material. Highly maneuverable.



**MASONITE BOX TRUCK**  
Smooth, tight interior. Masonite Presdwood panels.



**FOLDING BOX**  
Folds into one-fourth normal space.



**LEWIS SKID BOX**  
Specially designed for use with modern stacking and handling equipment.

There's "none better" for an effectively organized and uniform materials handling system. These lifetime Lewis Containers are constructed of selected northern elm slats woven together with sturdy steel wire. Smooth rounded cleats with dovetailed corners locked with heavy gauge three-way steel corner irons. Special requirements engineered to specifications. Ready for delivery.

Representatives from Coast to Coast.

**LEWIS**  
INDUSTRIAL CONTAINERS

6055 Montgomery Street  
Watertown, Wisconsin

Circle No. 74 on Reader Service Card for more information



### Air Hoist:

Aro Equipment Corporation offers literature on its Model 7700 air hoist which weighs 28½ pounds and can lift a 1000-pound load at 40 feet per minute. The hoist is a roller chain type, powered by rotary vane air motor, and is suitable for a wide range of applications. Complete specifications are listed.

Circle 211 on Reader Service Card

### Operator Training:

A different method of training fork truck operators in all phases of their trade—operation, maintenance and safety—has been developed by The Yale & Towne Manufacturing Company's Yale Materials Handling Division. The course consists of lessons grouped together as a full plan of instruction or presented in parts, and each section is an individual whole in itself. Yale & Towne has made this valuable training program available.

Circle 212 on Reader Service Card

### Equipment Catalog:

A 36-page catalog covering a wide variety of material handling equipment has been released by Allied Mfg. & Sales Co. The equipment includes 2-wheel hydraulic lift hand trucks, fork Lift Stacker hand trucks, hydraulic elevators, barrel and tote dumpers, portable shop cranes, derricks and hoists. The catalog is letter-file size and conveniently arranged with color-coded tab separators for each equipment classification.

Circle 213 on Reader Service Card

### Belting Manual:

A 48-page technical manual on transmission, conveyor and elevator belting is offered by Boston Woven Hose & Rubber Company. Although designed principally for engineers, each of the three major divisions of the manual contains a general information section comprehensively covering every aspect of each belting. General information data is handled in question-and-answer style in simple, lay language.

Circle 214 on Reader Service Card

### Dump Bodies:

St. Paul Hydraulic Hoist has released an 8-page descriptive catalog on its complete line of heavy-duty dump bodies and hoists for on and off highway service. Included in the literature is the regular St. Paul line of heavy-duty underbody arm-type hoists as well as their Hi-Dumper hoists, together with a complete compliment of dump bodies.

Circle 215 on Reader Service Card

### Air Vibrators:

Cleveland Vibrator Company has published a 6-page folder describing the application of its line of air vibrators in the concrete, construction, building and concrete product industry. The illustrated folder shows how the production of risers, concrete block, lintels, etc. can be expedited with the use of the vibrators. It's designated Catalog 106.

Circle 216 on Reader Service Card

## BOOST PRODUCTIVE MAN HOURS... CUT HANDLING COSTS

with



SAVE TIME . . . LABOR . . .  
DOLLARS IN HANDLING

Make every man hour count in your plant . . . cut down slowdowns in materials handling with Wayne Lifts. From loading platform to production line there's a Wayne Lift to save you time, labor and money. Every one is "precisioneered" . . . made to last for years without trouble . . . designed for easy servicing.

Wayne Engineers, utilizing "LIFTronics", offer a complete engineering service to establish the most efficient and practical solution to your lift problems. Each Wayne Lift—loading dock, cross-over bridge, materials lift, service lift—is custom-engineered to your plant's particular needs. Take the first step to improving your materials handling, write for "LIFTronics" . . . science of materials handling."

### THE WAYNE PUMP COMPANY

Salisbury, Maryland • Toronto, Canada



WAYNE LIFT DIVISION, Salisbury, Md.

Circle No. 124 on Reader Service Card for more information

## SKID PLATFORMS



Sectional Bins & Bin Skids



Semi-Live Skids



Skid Dollies

Years of experience have contributed to our "know-how" of efficient materials handling in which design and built-in ruggedness are the basic qualities of RE-BO LIFETIME SKIDS. Regardless of the size, capacity or special purpose, RE-BO has the proper skid for your requirements. Poured for pound, dollar for dollar—RE-BO Skids are THE buy of the platform market.

We invite inquiries of sales agents and distributors. Several good territories open.

**RE-BO** MANUFACTURING CO., INC.  
331 Madison Ave., New York 17

## Fork Truck of Future

The Model X-70—fork truck of the future—is featured in the current edition of the Material Handling News, external house organ of the Clark Equipment Co. The publication includes schematic illustrations and details of the new streamlined truck. It was built as an experimental model and incorporates many suggestions made by long-time fork truck users and the ultra-modern ideas fostered by Clark and Harley Earl designers.

Circle 217 on Reader Service Card

## Screw Conveyors:

Comprehensive information on screw conveyors and screw feeders is provided in a 92-page book (No. 2289) released by Link-Belt Company. The book gives detailed engineering information, with selection tables and horsepower formulas, layouts and arrangements, dimensional data and part numbers, to permit selection of screw conveyors and screw feeders for many types of applications.

Circle 218 on Reader Service Card

## Torque-Control Crane:

Bulletin 85 is a 16-page brochure from Orton Crane & Shovel Company, and it describes how the GM Allison torque converter has been applied to the Orton pneumatic-tired, one-man Aero-Crane. Orton air controls are said to reduce operator fatigue, and the application of torque control is said to increase the operating facility with pin-point control. A complete description of the crane, together with separate treatment of the torque control unit, specifications and capacities, are described.

Circle 219 on Reader Service Card

## Side Shifter:

A side shifter for use with any of the L-S SpaceMaster electric fork trucks is described in literature available from Lewis-Shepard Products, Inc. With the permanently-attached side shifter, the operator is able to move his load along the horizontal plane without moving his truck.

Circle 220 on Reader Service Card

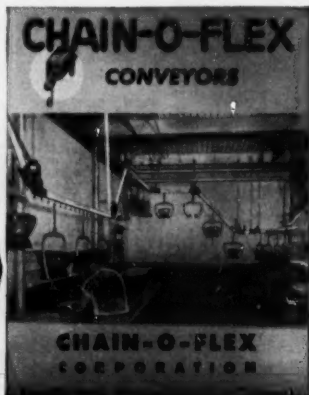
## CHAIN-O-FLEX

The Flexible, Power-Driven  
OVERHEAD CHAIN CONVEYOR

Presents Series "A"

A Light-Duty System with ALL of the BIG FEATURES!

- Flexibility Practically Unlimited
- No Moving Parts on the Chain
- Completely Enclosed and Protected
- Low Initial Cost
- Low Operating Cost
- Minimum Maintenance
- Highest Quality Materials Throughout
- Easily Installed or Moved
- Short-Radius Returns
- Self-Cleaning



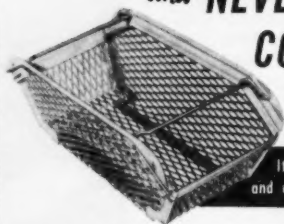
For complete details on these and many more outstanding features of CHAIN-O-FLEX CONVEYORS send for Catalog No. 251—today!

Circle No. 32 on Reader Service Card for more information

## CHANGE TO NESTIER

Expanded Metal **BASKET**

and **NEVER CHANGE CONTAINERS AGAIN!**



It's a degreasing basket and a "tote-box" all in one

No rehandling parts before or after dipping in double-duty Nestier Baskets. Parts move immediately in same container to next operation on overhead or roller conveyor, pallet, skid or by hand. Two standard sizes in various sizes of mesh and perforated metals.

They nest to save space!  
They tier in rigid stacks!



THE CHAS. WM. DOEPKE MANUFACTURING CO., INC.  
ROSSMERE, OHIO

Circle No. 42 on Reader Service Card for more information.

AUGUST, 1953 • FLOW

### NEMA Motor Standards:

A bulletin containing complete information on the latest NEMA motor standards is available from General Electric Company. The standards, recently passed by NEMA, set up new frame dimensions for a-c motors from 1 to 30 hp. Designated as GEA-5995, the 8-page two-color publication compares the old with the new frame assignments for open-type poly-phase, single-phase and wound-rotor motors as well as totally-enclosed fan-cooled types. Also listed are the suggested new frame assignments for foot-mounted and flange-mounted motors, and standards for minimum locked-rotor torque for general purpose single-phase motors. Circle 223 on Reader Service Card

### Task-Tailored Trucks:

Catalog No. 87 from Towsley Trucks, Inc., includes this company's line of platform trucks, two-wheel hand trucks and skids, all of which are said to be task-tailored. This comprehensive, 26-page catalog gives complete details, illustrations and specifications of the various models available. Circle 224 on Reader Service Card

### Wheel-Mounted Crane:

An 8-page catalog illustrating the heavy-duty, self-propelled, wheel-mounted Wayne Crane Model 20 has been published by the Wayne Crane Division, American Steel Dredge Company Inc. Entitled "Meet the Heavyweights", the descriptive catalog contains complete specifications, operating data and lifting capacities. Circle 225 on Reader Service Card

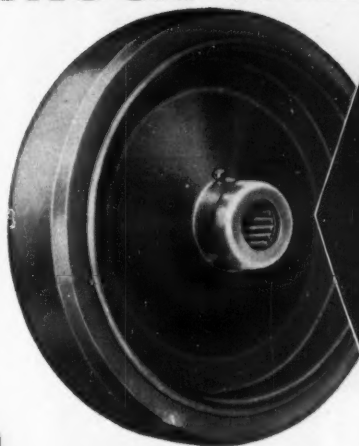
### Package Handling:

The complete line of Farquhar package handling conveyors is described in a 16-page, two-color catalog available from A. B. Farquhar Company. The line includes power belt conveyors, both portable and fixed, roller and wheel gravity units and the extendable boom conveyor. Circle 226 on Reader Service Card

Circle No. 39 on Reader Service Card for more information

## Something **NEW** IN TRUCK WHEELS!

- Pressed Steel Indestructible
- "Welded-in" Steel hub
- Light and Strong
- Roller Bearing in Planish sleeve
- Easy Rolling "Molded-on" Tires



**DICO  
-HD-**

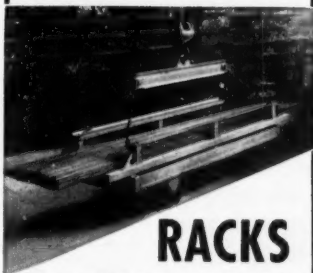
**Heavy  
Duty  
Industrial  
Wheel**

**DICO  
COMPANY**

Let DICO help you with your wheel problems. Write for our complete wheel catalog.

204 S.W. 16th ST., DES MOINES, IOWA

**FAB-WELD**



**RACKS**

**TO STACK BAR STOCK**

Strong and rigid for heavy, palletized unit loads, and clean, classified and accessible storage. Send for free catalog of other Fab-Weld Materials Handling Equipment.



**FAB-WELD  
CORPORATION**

3656 Richmond Street  
Philadelphia 34, Pa.

Circle No. 135 on Reader Service Card

**NOLAN ONE-MAN  
CAR DOOR OPENER**



**Opens Doors in 20 seconds  
or less!**



The Nolan Car Door Opener gives one man a tremendous amount of pulling energy, to get the most stubborn, hard-rolling door wide open in a hurry! New chain has 3000 lbs. tensile strength.

No gangs needed. No mangled limbs or loss of life. A few quick pulls on anchor chain gets any door open in a jiffy. The NOLAN saves its low initial cost in first hour of operation.

New safety and efficiency features now make the Nolan 1-Man Car Door Opener a more necessary labor-saving money-saving help than ever before.

**Many thousands in  
constant daily use!**

Free Literature. Order one or more NOLAN Model-H Car Door Openers now. Catalog on request.

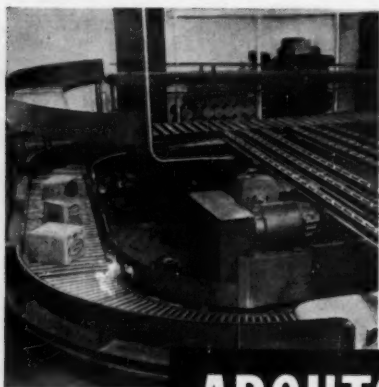
**The NOLAN Co.,**  
118-C Pennsylvania St.  
Gowanus, Bklyn

**\$37<sup>50</sup>**

F.O.B. Bowerston

Circle No. 96 on Reader Service Card

# Conveyor Roll Bearings you can install and forget!



**insist on ARGUTO**

## 1. NO LUBRICATION—EVER

No maintenance because they are self-lubricating.

## 2. NEVER RUST NOR STICK

Nothing to rust—not affected by dust.

## 3. EVEN WET CONDITIONS

Ideal for "wet packaging" such as bottling plants, damp atmosphere, etc.

## 4. "OUT OF SIGHT—OUT OF MIND"

Years of service without care.

## 5. EASY TO INSTALL

Replace other types of bearings with Arguto in a couple of minutes without special tools.

## 6. LOW IN COST

The most economical bearings on the market.

## 7. IN STOCK

Prompt delivery on standard conveyor roll bearings.

Arguto Catalog #210 is your reference book to eliminate conveyor roll trouble—also contains complete information on Arguto Screw Conveyor Bearings and Engineering Data.

Write today for Catalog #210

**BEARING ORDERS WILL BE FILLED PROMPTLY.**

**ARGUTO OILLESS BEARING CO.**

143 W. BERKLEY ST.  
PHILADELPHIA 44, PA.

20 years  without a drink

Circle No. 10 on Reader Service Card for more information.

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## NEW EQUIPMENT . . .

(Continued from page 42)

### Pallet Tying Truck

A new hydraulically-operated unit designed for small plants and warehouses is now being offered by The Raymond Corp. Known as the Pallet Stacker the truck has a  $\frac{3}{4}$  horsepower motor driven pump which will tier pallet loads as high as 115 inches. The truck has a push-button remote elevating control and a hand valve lowering control. With a rated capacity of 2000 pounds, the truck weighs approximately 1300 pounds. The truck's compact design permits operation in narrow aisles, box-cars or highway trailers. Its mast extends 138 $\frac{3}{4}$  inches when elevated, while measuring only 83 inches collapsed.

Circle 163 on Reader Service Card for more information



## FOR BETTER HANDLING

Look under "Trucks" or "Casters" in your classified phone directory for your nearest Nutting representative.

SINCE 1891

**Nutting**

**TRUCK & CASTER CO.**  
1607 Division St. Faribault, Minn.

Export Sales Representative Schell International Inc.  
4227 North Lincoln Avenue, Chicago 18, Ill.

Circle No. 97 on Reader Service Card for more information  
AUGUST, 1953 • FLOW



## Low Cost Hoist

Incorporating all the features of its standard



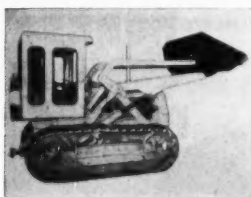
Zip-Lift hoist, the Harnischfeger Corp. has developed a rope control electric hoist that can be sold at a comparatively lower cost. The "one hand" rope control is in addition to all the features of the regular model. The company guarantees the new Zip-Lift will operate continuously during intermittent usage for a period of 25 percent longer than the rated time

limit. It also incorporates a weight overload safety factor five times the rated capacity. All P&H hoists utilize wire rope hoisting. The new Zip-Lifts come in two sizes, 500 and 1000 pound capacities.

Circle 164 on Reader Service Card for more information

## Tractor Cab

Production of heavy-duty cabs for installation on the Caterpillar HT4 Traxcavator tractor has been announced by Crenlo, Inc. The Crenlo cab,



specially-designed for crawler tractor service, is all-steel and welded. The 12-gauge body is reinforced by framing of 3/16-inch structural members. Hinges and latch mechanism are heavy-duty

type and windows are 3/16-inch safety glass mounted in self-sealing weatherstrip. A canvas curtain—removable for warm weather operation—extends from the bottom of the windshield to the dash and floor plate. Doors may be fastened in open position. Dimensions of the cab are: height, fender to roof, 56 inches; width across cab, 52½ inches; length front to back, 44¾ inches; door opening, 25 inches wide by 48 inches high. Shipping weight is approximately 700 pounds.

Circle 165 on Reader Service Card for more information

## Shuttle Conveyor

A shuttle conveyor which is said to provide the "missing link" in continuous mining has been developed by Hewitt-Robins Inc. Extendable to 600 or 700 feet by a rope haul, the conveyor can follow the progress of mining while maintaining a fixed discharge or transfer point. It may receive

you may use the  
**MARTIN-DECKER lift truck scale**

for  
**FREE 15 DAYS**

If for any reason you are not entirely satisfied with it just return the scale to us parcel post prepaid and we will promptly refund your money provided the scale has not been damaged

**WEIGH IT  
AS YOU LIFT IT**



**makes every  
lift truck  
a scale**



Fits Any  
Hydraulic  
Cylinder Type  
Lift Truck

## THE MARTIN-DECKER LIFT TRUCK SCALE

- Enables Fork Truck Driver to totalize highway truck or railroad car loadings
- Prevents highway overload citations
  - Insures a pay load every time
- Ideal for testing truck ratings
  - Permits floor weight distribution
- Prevents elevator overloads
  - Safeguards equipment and life
- Reduces accidents

**The time and equipment savings will quickly pay for the MARTIN-DECKER Lift Truck Scale**

**ACT NOW!**

- ☐ Please send literature on Martin-Decker Lift Truck Scale.
- ☐ Have local representative call for an appointment.

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

**MARTIN DECKER CORP.**  
LONG BEACH, CALIFORNIA

Circle No. 80 on Reader Service Card for more information



# Materials Handling

## FOR THE METAL WORKING INDUSTRY



**CHIP-TOTE** conveyors increase machine tool production by continuously removing chips, turnings and borings. There's no need to shut down productive machinery for manual scrap removal—CHIP-TOTES do the job automatically while the machines are operating. Write for Bulletin MF-640.

**HINGED-STEEL BELT** is made for punishment. It handles metal scrap, hot forgings, flash, wet or dry metal chips and turnings and other sharp or abrasive materials that disintegrate ordinary belts. Can be furnished in almost any width or length. Bulletin MF-530.

**LITTLE HUSTLER** conveyors are known as the most versatile ever made. Fully portable and adjustable, these units provide economical handling where working heights and layouts change from time to time. Adjustable to any angle from horizontal to 45°...working height variable through 30-inch range. Bulletin MF-2-413.

**CONVEYING AND SPECIAL EQUIPMENT** for the metal working industry is our specialty. A single unit to solve one handling problem or a complete plant-wide system to mechanize all operations can be furnished. Because we fabricate equipment from mass-produced standard parts, we assure maximum economy and quick delivery. Write for catalog.



**MAY-FRAN**

**ENGINEERING, INC.**

1691 CLARKSTONE ROAD, CLEVELAND 12, OHIO

Gentlemen: Please send me, without obligation,

☐ Chip-Tote Bulletin MF-640 ☐ Conveying & Special Equip. Catalog  
☐ Hinged-Steel Belt Bulletin MF-530 ☐ Little Hustler Bulletin MF-2-413

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

Circle No. 83 on Reader Service Card for more information

96

material directly from the mining machine or from an intermediate unit such as a shuttle car, conveyor or loading machine.

Circle 166 on Reader Service Card for more information

### Sky's The Limit

A high lift model of the Baker-Lull Shovel-loader designed for loading gondola cars, hoppers and trucks with bulk materials has been developed by Baker-Lull Corp. Lifting heights to 16 ft., dumping heights to 14½ ft., and load capacities as high as 6000 pounds suit the High Lift Shovel-loader for versatile work in many industrial plants and yards, according to the manufacturer. Four accessory tools are available to increase utilization of the Shovel-loader. They include a coal and snow bucket, a loose materials bucket, a general material bucket and a crane hook. The Shovel-loader can be mounted on one of several makes of industrial tractors.



Circle 167 on Reader Service Card for more information

## HOBBS Engine Hour METERS



... by leading manufacturers



**HOBBS ENGINE HOUR METERS** are installed as original equipment by leading manufacturers of materials handling equipment... and recommended as an approved accessory. A primary reason for this acceptance is the fact that the **HOBBS ENGINE HOUR METER** is not a revolution counter, but a true timing instrument that records hours and minutes of equipment operation. It takes the guesswork out of maintenance... helps prevent breakdowns and prolong equipment life.

**PROMPT DELIVERY!** Order now from your factory branch, representative or distributor... or send for Catalog 569 for COMPLETE INFORMATION.

ORIGINATED AND MANUFACTURED EXCLUSIVELY BY

**John W. Hobbs Corporation**  
2061 YALE BLVD. SPRINGFIELD, ILLINOIS

Circle No. 65 on Reader Service Card for more information  
AUGUST, 1953 • FLOW

## Extra Heavy-Duty Casters

Buffalo Caster & Wheel Corporation announces a series of extra heavy-duty malleable iron swivel casters.



Known as the "21 Series", these double ball bearing swivel casters have top plates, fork, wheel and king bolt nut of malleable iron for greater strength and ability to stand up under hard use. Wheels are equipped with oilite bearings. A cotter pin in the king bolt

locks the nut in place to assure trouble-free service. These casters are available in 3 and 4-inch sizes, with capacities of 1000 and 1200 pounds each.

Circle 168 on Reader Service Card for more information

## Wheel-Spin Stopper

A simple device designed to brake a spinning rear wheel so the other can free the vehicle from mud, snow or ice is now available for Yale fork lift trucks. The Yale & Towne Manufacturing Company will install the device—the Mico-No-

## Moving or Storing is Rapid, Convenient and Inexpensive with IRONBOUND SEMI-LIVE SKID PLATFORMS



Ruggedly built with capacities up to 2500 lbs. These units are quickly made mobile with the use of low cost lift jacks . . . One of the methods that Ironbound engineers use to increase production and conserve space at low cost.



### SEMI-LIVE SKID WITH BOX TOP

. . . permanently attached or removable. Also available with many other superstructures to "Short-Haul" your products thru production or into storage. Useful in hundreds of spots in every plant.

### THE IRONBOUND "SAFETY-SKID" WITH ROUND CORNERS

Ironbound construction assures long hard use with complete safety to product and operator. Still the time proven method for handling of materials efficiently and economically.



**IRONBOUND**  
BOX & LUMBER COMPANY  
Materials Handling Division  
30 HOFFMAN PLACE • HILLSIDE, N. J.

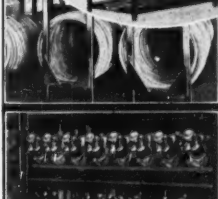
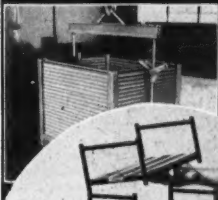
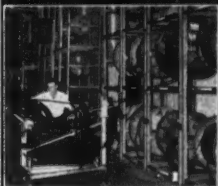
MANUFACTURERS OF QUALITY BUILT SKIDS, SEMI-LIVE SKIDS, FLOOR TRUCKS, ROLL TRUCKS, DOLLIES AND PLY BARS  
Circle No. 71 on Reader Service Card for more information  
**FLOW • AUGUST, 1953**

# Well Stacked!

Let our rack specialists assist you in planning your new system to incorporate special economies in unit load handling—in production—in storage, regardless of the type material or product or unusual condition involved.

Our strong square tubular EMI racks save floor space and do it in the most efficient way.

Write  
for our  
catalog



**EQUIPMENT  
MFG. INC.**

21552 HOOVER ROAD, DETROIT 5, MICHIGAN

COLLAPSIBLE STOCK BOXES • ROLL RACKS • BULKHEADS

COIL RACKS • REEL RACKS

STOCK RACKS • PALLET RACKS • PALETS

DOLLY TRUCKS

Circle No. 46 on Reader Service Card for more information  
97

# MAGNESIUM PLATE



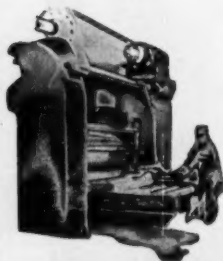
**MAKE IT  
WEIGH LESS!**

Every pound saved can mean less cost in **power** and in **worker-fatigue** every time it's used!

That's why buyers, designers, and makers of implant equipment are vitally interested in B&P's announcement of

COMMERCIAL GRADE MAGNESIUM PLATE AT A NEW LOW PRICE. It replaces heavier metals and wood. **Steel is 400% heavier!**

Design with Magnesium whenever the product is going to be carried, lifted, pushed—either by human energy or by power. Write B&P for Magnesium plate and sheet literature and prices.



**LET US SEND YOU  
FACTS AND FIGURES**

Mention the application you have in mind, and B&P engineers can be helpful. Write us on your letterhead, please.

**BROOKS and PERKINS**  
INCORPORATED

Pioneer Magnesium Fabricators; Plate  
and Sheet Rolled from Magnesium Ingot

1944 W. FORT ST., DETROIT 16, MICHIGAN

Circle No. 26 on Reader Service Card for more information  
98

Stuk—at the factory on new equipment or will supply it for installation on trucks already in use. Because this device operates directly on the braking system of the truck, and is completely independent of the differential, it is easily and inexpensively installed.

Circle 170 on Reader Service Card for more information

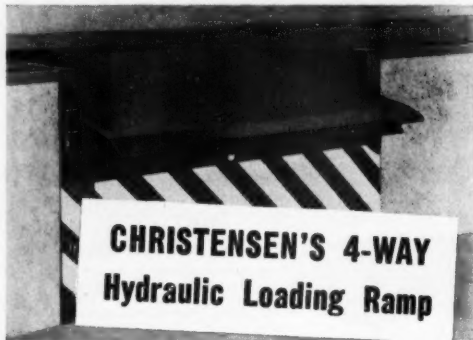
## Towmotor With Engine Hour Meter

Towmotor Corporation announces that the Hobbs engine hour meter can now be furnished users of all Towmotor lift trucks and tractors. Available as original equipment at additional cost, or installed on Towmotor units already in use, this instrument permits accurate recording of all phases of lift truck and tractor operation. Among the many advantages it adds is the elimination of guesswork in scheduling all maintenance functions and periodical service check-ups. The meter is adjusted and timed by the manufacturer, then sealed against tampering or foreign matter.



Circle 171 on Reader Service Card for more information

## FOR NO DROP... NO SPILL LOAD DELIVERY



The finest of all loading ramps, featuring 4-way movement, UP, DOWN, IN & OUT. Two standard models of this self-contained unit are manufactured, one 6' wide x 6' long, the other, 6' wide x 8' long. Both are rated up to 20,000 lbs. Finger tip control instantly positions the unit in any position required.

Write Today for Details of the Complete Line of Loading Ramps

**Wm. Christensen Co., Inc.**

DEPT. 100 • YORK, PENNSYLVANIA

Circle No. 33 on Reader Service Card for more information  
AUGUST, 1953 • FLOW

## Cleated Belting

Goodall Rubber Co. is marketing a new rubber conveyor belting with rubber cleats incorporated as an integral part of the belt itself. Thoroughly field tested, the belt is said to be ideal for many bulk handling operations. Advantages over the usual angle-iron-riveted or bolted cleats are said to include freedom from breakage or pulling off of the cleats. The new belting is being sold under the trade name, "Sky Kleet," and is said to be less expensive than patented metal cleats and can be built on any grade belting ordered by the customer.

Circle 172 on Reader Service Card for more information

## Brake Compound

A brake compound designed to end brake "fade", and to yield better braking action, has been introduced by Cop-Sil-Loy, Inc. It is a paint-like compound, suspended in a bonding vehicle for adhesion, which is brushed carefully on the roughened surfaces of the brake linings. The compound dissipates heat and lowers extreme temperatures on the brake linings because the conduc-

## GRAND FORK LIFT HAND TRUCK

with VARILIFT



Electric Lift Stacker  
Model 7158



Shop Caddy  
Model 4036

### ... the 4-Speed Hydraulic System that Fits Lifting Speed to Load

The new Grand Lift Stacker is a man-saving hand truck which moves and lifts heavy loads smoothly and safely. For warehouse stacking, for loading and unloading trucks, for handling boxes, barrels, dies, totebins and hundreds of similar loads, the Lift Stacker is Industry's most useful tool!

Lift Stackers are compact, easy rolling and may be used on low load limit floors. The sensational new Varilift speeds up handling of light loads and unloading operations by as much as 400%.

40 Grand models are available to meet practically any hand truck requirement with capacities up to 3000 lbs. and lifting heights to 98 inches in either manual or electric hydraulic lift types.

Your Grand distributor will gladly demonstrate in your plant.

Write or wire for complete information.



**ALLIED MFG. & SALES CO.**  
201 W. WELLS ST. • CHICAGO 6, ILL.

Circle No. 4 on Reader Service Card for more information  
FLOW • AUGUST, 1953

## Cesco's TOTE-SHOP BOXES

... Do Your Job • EFFICIENTLY • EASILY • ECONOMICALLY

ON CONVEYORS, PALLETS, HAND TRUCKS,  
SKID PLATFORMS, OR WHAT HAVE YOU



1. Heavy Duty Strut . . . Prevents Sag . . . Permits Bottom Flex . . . Distributes shock.
2. High Grade Hard Wood Lumber .
3. (FM) Flat Metal Bottom . . . likewise available in open type bottoms FEM-FPM-WM illustrated below.
4. Specially designed "Bottom Stacking Runner" . . . One piece . . . Rounded Corners (No Mitered Joints — No Distortion).



### CESCO'S MB (METAL BOTTOM) BOX

| (Prices net - per box) | MB-20  | MB-24  |
|------------------------|--------|--------|
| Lots of 2000           | \$2.65 | \$3.00 |
| 1000 — 1999            | 2.67   | 3.02   |
| 500 — 999              | 2.69   | 3.04   |
| 250 — 499              | 2.74   | 3.09   |
| 100 — 249              | 2.79   | 3.14   |

#### 2 STANDARD SIZES

MB-20: 14½" x 11¾" x 9¾"

MB-24: 17½" x 11¾" x 9¾"

F. O. B. Northampton, Mass.

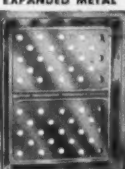
### CESCO'S WB (WOOD BOTTOM) BOX

Depending upon the material packed and the handling method stock sizes will accommodate loads up to 200 lbs.; possibly greater.

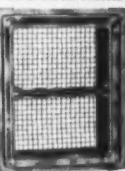
- Ruggedly constructed . . . steel reinforcing features of zinc coated prime stock . . . Self Stacking . . . convenient hand holes
- Binding rivets PLUS corner lock style yields maximum rigidity

Write today for quotations on special sizes . . . Please submit specifications.

FEM — FLATTENED  
EXPANDED METAL



FPM — FLAT  
PERFORATED METAL



WM — WIRE MESH

### CESCO'S WB (WOOD BOTTOM) BOX

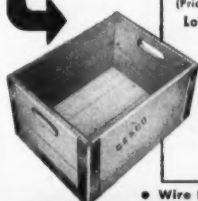
| (Prices Net - per box) | WB-1   | WB-2   | WB-3   |
|------------------------|--------|--------|--------|
| Lots of 2000           | \$1.80 | \$2.05 | \$2.20 |
| 1000—1999              | 1.82   | 2.07   | 2.22   |
| 500—999                | 1.84   | 2.09   | 2.24   |
| 250—499                | 1.89   | 2.14   | 2.29   |
| 100—249                | 1.94   | 2.19   | 2.34   |

No. 1 size — (I.D.) — 14½" x 11¾" x 9"

No. 2 size — (I.D.) — 18" x 11¾" x 9"

No. 3 size — (I.D.) — 20" x 11¾" x 9"

F. O. B. Northampton, Mass.



● Wire Baskets ● Special Pallets ● Tote Trays

**CESCO CONTAINER CO.**

475 Fifth Avenue  
New York 17, N. Y.  
Factory: Northampton, Mass.

Circle No. 31 on Reader Service Card for more information



Circle No. 35 on Reader Service Card for more information

Save time! Prevent accidents!

## LIFT AND DUMP MECHANICALLY

**BAGS  
BARRELS  
DRUMS  
BOXES**

**REDUCE HANDLING COSTS** with a Cesco Dumper. It handles up to 100 loads per hour; has a lifting cap. ranging from 100 to 1500 lbs. Both single- and multi-purpose portable models are built in standard dumping heights from 5 to 12 ft. Stationary models up to 16 ft. dumping heights. Push button controlled. Write for catalog.

**ESSEX CONVEYOR, INC.**  
101 Cadden Street • Newark, New Jersey  
**COLSON EQUIPMENT & SUPPLY CO.**  
1317 Willow Street • Los Angeles 13, California



tivity of copper in the compound spreads the heat more readily into the atmosphere from the friction surface.

Circle 174 on Reader Service Card for more information

### Scale For Fork Trucks

Standard installations of a new type hydraulic fork truck scale come in capacities of 2000, 3000 and 4000 pounds, (illustrated), but they can be provided to weigh up to 10,000 pounds. This accessory, which operates on its own hydraulic system (is not connected to the truck hydraulics), is claimed to provide readings within 1 deg. accuracy, regardless of off-center displacement of the load or tilt of the truck within the latter's safety limit. It can be installed immediately on any trucks having forks attached to horizontal bars; when forks are pin-mounted, installation of the scale takes approximately a half hour. A scale is interchangeable between trucks on the same basis. Manufacturer is Hamblin Weigher & Scale Co.



Circle 175 on Reader Service Card for more information



## ROWE ADJUST-A-DOCKS

**Make Dock Handling A Low-Cost Production Line Operation**

Now, you can reap the tremendous savings which accompany effortless, straight-line flow across your shipping docks. With Rowe Adjust-A-Docks, you can eliminate costly time and manpower waste, tedious back-breaking rehandlings.

Write today for this free, informative booklet

**ROWE METHODS, INC.**

2534-C DETROIT AVE. • CLEVELAND 13, OHIO

Circle No. 107 on Reader Service Card for more information

**ADJUST-A-DOCKS** are instantly raised or lowered to meet the level of any over-the-road truck or rail car. Note these unique construction and operating features.

- 1 **CONTROL STATION**—Full-range raising and lowering is instantaneous with this wall-mounted, double push-button control.
- 2 **LAYOVER ARMS**—Extra-heavy rounded layover arms provide a safe curb and reduce excessive wear on industrial truck tires.
- 3 **DOCK FLOATS AT TRUCK LEVEL**—Unique bridge design compensates for changes in truck bed height as the carrier is loaded or unloaded.
- 4 **RUGGED DECK CONSTRUCTION**—Surface of checkered plate welded to standard beams and channels gives built-in resistance to impact, stress.
- 5 **EASILY INSTALLED, 100% SALVAGEABLE**—Power units are easily exchangeable and economical to maintain; the dock is built above ground for salvaging.
- 6 **AVAILABLE UNITS**—Models are available with 10,000 and 20,000 capacities. Docks can support 2/3 of total load on one side without racking.





## Load Grab Attachment

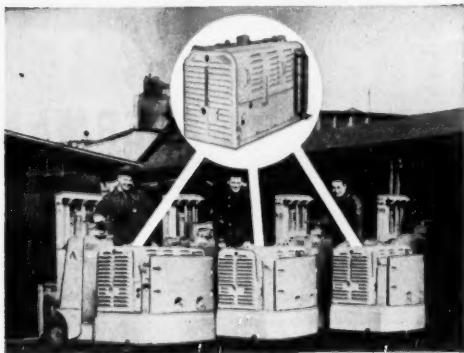
Hyster Company's load grab attachment is now available as a load grab side shift and remote control fork positioner, according to an announcement by the company. It converts the basic load grab attachment into a side shifting grab. The principle of this is that the attachment can be aligned with the load instead of maneuvering the truck in crowded quarters. This combination of the basic load grab now permits speedier handling, less maneuvering and more accurate stacking. It also has such advantages as stacking close to walls where overall width of the truck is greater than the overall width of the load.

Circle 176 on Reader Service Card for more information

## Cork-Topped Belt

For conveying light materials up steep inclines, a belt with a cork-filled neoprene coating has been announced by Main Belting Company. Impervious to oil, this rough-surfaced belt is covered

## Ready-Power is the Only Interchangeable Gas-Electric Power Unit



Interchangeable Ready-Power units allow the most economical system of preventive maintenance known, with *no truck downtime!* One spare power unit permits rotation of maintenance while trucks stay "on the job" . . . an important reason why Ready-Power drive moves materials at lowest cost per ton mile!



Remember . . . Your Truck is No Better Than Its Power!

**The READY-POWER Co.**

3838 Grand River Ave., Detroit 8, Michigan  
Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel-Electric Power Units for Industrial Trucks

Circle No. 103 on Reader Service Card for more information  
**FLOW • AUGUST, 1953**

## BEAT the HIGH COST of LIFTING

with efficient time-saving...

**Hi-Speed job-fitted**

**BAUGHMAN CONVEYING EQUIPMENT**



MODEL 225

**Conveyor Combinations** assembled from standardized sections. Quickly "job-fitted" to any bulk material handling problem. Prompt delivery from stock. Bulletin A-342.

MODEL Q-51

**Hi-Speed Screw Conveyor** for material that rolls or becomes fluid in motion. Permanent installations or portable models as above. Underbin and undertrack screw loaders easily attached. Write for Bulletin A-295.



MODEL 175

**Belt and Bucket Elevator.** Fully enclosed buckets, centrifugal discharge elevator for permanent or temporary installations. Also open belt and bucket models, 210 and 220 available. Write for Bulletin A-299.

MODEL 230

**Portable Troughed Belt Conveyor** . . . standardized and "job-fitted" to your needs. In lengths up to 46 ft. Powered by gasoline or electric motor. Write for Bulletin A-296.



**BAUGHMAN Mfg. Co., Inc.**  
104 Arch St. Jerseyville, Ill.

Circle No. 21 on Reader Service Card for more information  
**101**



weigh  
and  
transfer  
with only  
**1** pickup

**DILLON**  
*Crane Scales*  
ARE LOWEST IN COST...

greatest value in scale field today!

Dillon portable crane scales combine weighing and load movement in one operation. Cut handling time over 50%. 100% MECHANICAL OPERATION. (No fluids to leak.) GUARANTEED ACCURACY TO WITHIN ONE DIVISION. Large 16" dia. dial, with red indicator, assures easy reading. No-flutter pointer registers instantly. TARE RESET compensates for weight of lifting slings, etc.

Dillon scales are constructed to withstand constant, rugged use. PROTECTED AGAINST ACCIDENTAL OVERLOADING AND SHOCK RECOIL. Unaffected by wide temperature variations. Strong plastic crystal covers the dial. HUSKY SWIVEL HOOK ROTATES 360° ON HEAVY-DUTY BALL BEARING.

Dillon crane scales are compact, economical and dependable. IDEAL FOR FACTORY BAY, YARD OR FIELD. Can't wear out under normal use. Quickly pay for themselves!

**W.C. DILLON & Co., Inc.**  
146200 Keswick Street  
Van Nuys, California  
(Suburb of Los Angeles)

Circle No. 40 on Reader Service Card for more information

WRITE FOR FREE  
ILLUSTRATED  
CATALOG



Contains helpful price and weighing information. Gives detailed data on various capacities available.

with small pieces of cork which grip the material being conveyed and prevent back-sliding on inclines of 25 degrees or more. It is available in any desired width up to 132 inches.

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#### High Lift Debut

Truck-Man Division of the Knickerbocker Co. makes its entrance into the high lift field with its new Model 40, two-ton capacity fork truck. According to the company the new model is designed for efficient use in outdoor storage yards as well as transporting and stacking inside the plant. Features include a turning radius of only six feet, a tilting mast, hydraulic side shift, oversized clutch, heavy duty transmission and axles. Heavy road lug tires provide ample traction even on soft ground. The truck is powered by a four cylinder Ford industrial engine developing 40 brake horsepower.



Circle 178 on Reader Service Card for more information

**REDUCE BULK STORAGE LABOR AND EXPENSE...**



Scraper storing and reclaiming wet phosphate rock alongside drying plant



Scraper spreading gypsum rock from wall to wall in storage building

with a

## SAUERMAN SCRAPER

You can drastically reduce the cost of storing and reclaiming bulk materials with a Sauerman Power Drag Scraper. That's because one man can operate it—can quickly handle tons of raw or processed materials, indoors or out, in a space of any size or shape. Sauerman Power Scrapers are low in first cost, too—seldom need repairs. For stockpiling coal, they offer the added advantage of building a compact pile that prevents spontaneous combustion.

Write for free, illustrated catalog on bulk handling methods.

**SAUERMAN BROS. Inc.**

540 S. Clinton St.,  
Chicago 7, Ill.

Circle No. 108 on Reader Service Card for more information  
AUGUST, 1953 • FLOW

### Crawler Shovel-Crane

Schild Bantam Company announces a  $\frac{3}{4}$ -yard, 5-ton rated crawler-mounted line of cranes, back hoes, draglines, shovels, clamshells, pile drivers



and magnet cranes. Model designation of the crawler is the "C-35". This model is said to be designed with many important engineering features, such as two-speed independent travel, enabling the operator to work a front-end attachment while traveling and swinging the machine, all simultane-

ously; undercarriage is designed with heavy-duty main frame and deep, rigid side rails; six track rollers provide even distribution of load weight over entire track assembly; drive power through chain and jaw clutches are used for each track; a "twin-swing" drive arrangement, plus fast-acting mechanical controls and jaw clutches. It is equipped with 16-inch pads and has an overall width of 94 inches. It weighs 15,522 pounds, including 1400-pound counterweight, but without a front-end attachment.

Circle 179 on Reader Service Card for more information

Circle No. 1 on Reader Service Card for more information

- NEW
- INEXPENSIVE
- EASY TO MOVE

## FLEXO-CRANE



### For Handling of Loads Up to One Ton

If real economy, safety and ease of operation are of interest to you, check into Abell-Howe's new FLEXO-CRANE. You can buy it complete with hoist and other accessories or assemble it yourself from a FLEXO-CRANE "kit".

**Bulletin F-120**  
Gives You All the Details  
Write for It Now

The Abell-Howe line includes a wide range of motorized and hand operated cranes, runways, monorails, electric hoists, storage racks and accessories.



**ABELL-HOWE CO.** 53 W JACKSON BLVD  
CHICAGO 4, ILLINOIS

## 4 MEN ON A RAMP



## Replaced by 1 and a SERVICE LEVELER

### Here's the Story of Actual Manpower Savings by One Progressive Company

When the Canadian Line Materials Co., of Scarborough, Ontario, used a ramp to reach the level of their loading dock, "It was taking three or four men to shove even the smallest load up the ramp." Now, with the Service LEVELER installation pictured at right, only one man is required to move even capacity loads onto the dock. This saves the

wasted time and distraction from other duties of at least two men for every heavy shipment made... a substantial, worth-while manpower savings.

Find out how the LEVELER can cut your costs and save strain on men, and mobile equipment in loading trucks and cars, lifting to different floor levels, etc. Write for detailed information today.



**See Service for Specials** Versatile design permits most Service lifting equipment to be made up as low-cost semi-specials to fit your exact needs. We'll be glad to discuss your requirements.



## SERVICE CASTER & TRUCK CORP.

Executive Offices: Albion, Michigan  
Plants at Albion, Michigan and Somerville 43, Mass.

See Your Classified Telephone Directory for Nearest Distributor.

### SERVICE LEVELER

Capacity — 4000 lbs.  
Lift — 5'  
Platform sizes — 5' to 12'  
Portable and stationary models.



## with International Stapling Machine

Uarco, Inc., Chicago manufacturers of business forms reports a saving of more than \$1650 a month with an International Retractable Anvil stapling machine.

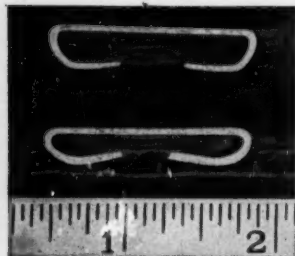
The stapler, a double headed, air operated model priced at only \$3,400 (it almost paid for itself in 60 days), is used to close filled cartons from the outside, top and bottom simultaneously. Daily volume is 2,500 cartons of various sizes . . . in a 12-hour period.

**75% SAVING IN MAN HOURS . . .** Prior to 1947,

Uarco closed cartons by another method. Processing 2,500 cartons required 48 man-hours. Today, with an International Retractable Anvil Stapling Machine, it takes only 12 man-hours to close 2,500 cartons.

**"HIGHLY SATISFACTORY"** . . . Here's what John A. Tanovich, chief layout-material handling engineer has to say about International stapling equipment: "We have found your C2E carton stapling machine a highly satisfactory unit with the desired flexibility to staple any of our cartons to meet the packaging requirements of interstate shipments. When coupled with our system of conveyors, this stapling machine accounted for a minimum of \$20,000 per year as its share of packaging savings."

**What's your closure problem? If you ship in corrugated or fibre containers, an International staple machine can close them better, faster and more economically. Write for detailed information.**



All International Staple Machines feature the penetration control which permits either standard or concealed staple clinching as shown in actual size cross section view at left.

**a seal of security**



**INTERNATIONAL STAPLE & MACHINE CO.**

808 Herrin Street, Herrin, Illinois  
*Distributors in principal cities*

Circle No. 70 on Reader Service Card for more information

# **PACKAGING and SHIPPING SECTION**

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DEVOTED TO THE MECHANICS OF PACKAGING AND  
PREPARATION FOR SHIPPING      MATERIAL HANDLING FUNCTIONS



# An Easy Index to This Month's Advertisers

Are you looking for a particular type of packaging and shipping equipment? Listed below are advertisers according to the type of product they are advertising in this issue. We have attempted to make your job a little easier by listing them as often as possible. To use this index, find the type

of product in which you are interested . . . turn to the advertisers listed under that product . . . circle the correct numbers on the reader service card, mail it in, and you'll get complete information in a jiffy.

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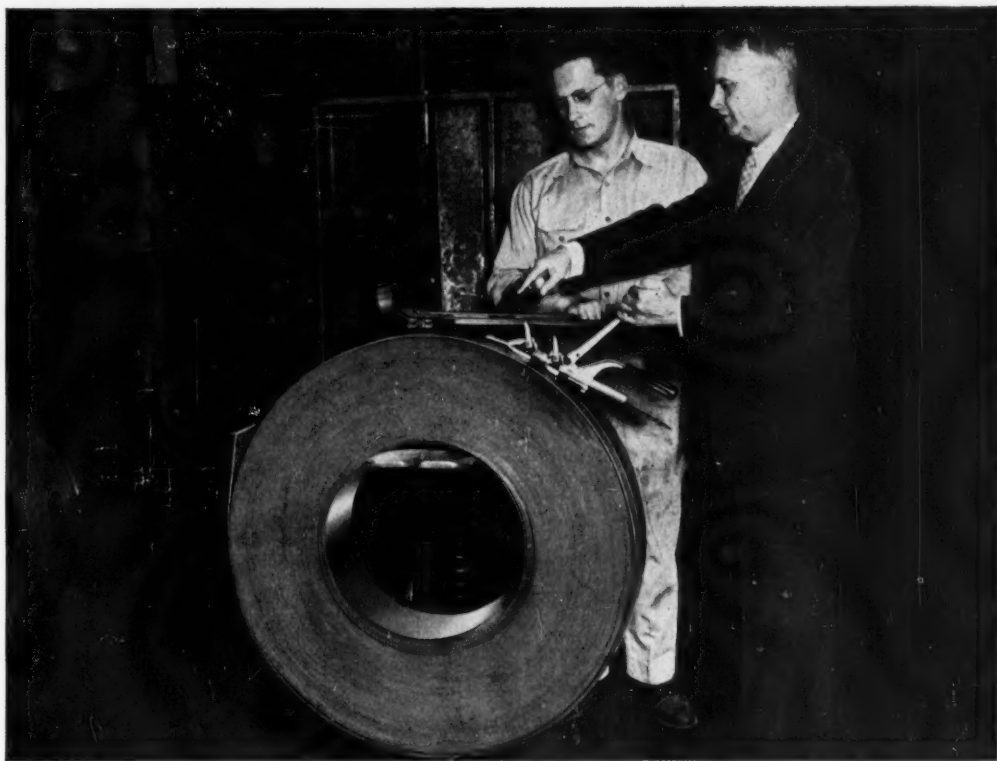
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## 50% faster handling!

### Can Brainard Strapping Service help you?

**H**ERE is Brainard salesman Oscar Gagnon of Boston demonstrating a more efficient method of securing rolls of strip steel. The rolls are now banded with heavy-duty Brainard strapping before annealing. Handling is easier all along the way, and operations have been speeded up 50%.

Oscar Gagnon is an old hand in the materials-handling field, and has helped many companies reduce packaging and shipping cost. Like other Brainard salesmen, he has the

experience to *study* your operations, *recommend a system* and *demonstrate* to your personnel.

Brainard salesmen can help you develop strapping systems for packaging, palletizing, carloading, bundling, export crating and warehousing. Ask for a Brainard strapping analysis and determine if you can make substantial savings in these operations. Brainard offices are located throughout the U. S. In Canada: Brainard Steel Canauian Division, Toronto.



COMPLETE STEEL STRAPPING SERVICE, LIGHT AND HEAVY-DUTY STRAPPING, TOOLS AND ACCESSORIES

For further information, write  
Brainard Steel Division,  
Sharon Steel Corp., Dept. K-8,  
Grissold Street, Warren, Ohio



## STEEL STRAPPING

Circle No. 25 on Reader Service Card for more information

# Announcing

A new superior interior packaging  
at the price of ordinary materials



## "Standard" KIMPAK Type 301

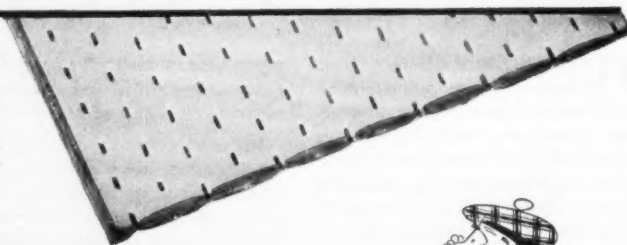
The new economical, general purpose interior packaging material

Now — the unmatched protection of KIMPAK\* at a price that challenges low-cost materials. That's the remarkable advantage of new "Standard" KIMPAK — Type 301!

And this latest addition to the KIMPAK line is designed with these general-purpose features to meet your particular needs:

- Complete range of standard thicknesses
- Widest selection of standard backing papers
- Plain or embossed at the same low price
- Available in rolls or sheets
- Widths from 2" to 60"

No other interior packaging material compares with New "Standard" KIMPAK — Type 301. To convince yourself, contact your KIMPAK distributor or mail the coupon today.



\* T. M. REG. U. S. & FOREIGN COUNTRIES

A Product of  
**Kimberly-Clark**

KIMBERLY-CLARK CORPORATION

Dept. B-83 Neenah, Wisconsin

We are interested in further information about new "Standard" Kimpak — Type 301.

Name .....

Address .....

City ..... Zone ..... State .....

Our product is .....

Circle No. 72 on Reader Service Card for more information

# WHAT'S NEW... in Packaging and Shipping Equipment

## Steel Strapping Kit

A completely self-contained steel strapping kit which can be carried from job to job in plants, shops, storage yards, etc., has been announced by Brainard Steel Div. of Sharon Steel Corp. Called the Utilikit, it contains a 300 foot coil of steel strapping in a cardboard dispenser, 1000 strapping seals and three basic tools; stretcher, sealer and snips. Said to be ideal for small volume user of strapping.

Circle No. 180 on Reader Service Card for more information



## Heavy Duty Box Stitcher

A heavy duty duplex-head box stitcher designed for continuous high speed stapling of large corrugated and solid fibre cartons has been announced by Bostitch. The machine drives and clinches two staples  $2\frac{1}{2}$  in. apart with each stroke and has rated speed of 250 strokes per min. A throat depth of 25 in. makes it possible to staple containers up to four ft. wide according to the manufacturer.

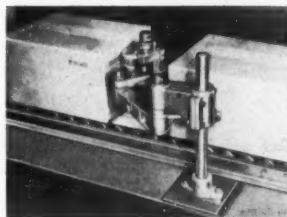
Circle No. 181 on Reader Service Card for more information



## Marking Four Sides Simultaneously

A twin-action friction-operated machine for marking codes or lot numbers simultaneously on both rear and one side of shipping cases as part of sealing and conveying operation is a new development of Adolph Gottscho, Inc. The unit, designated Rolacoder 200, has been designed to work in tandem with the recently announced Rolacoder 500 to permit automatic marking of all four sides of cases at one time.

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## Versatile Packaging Machine

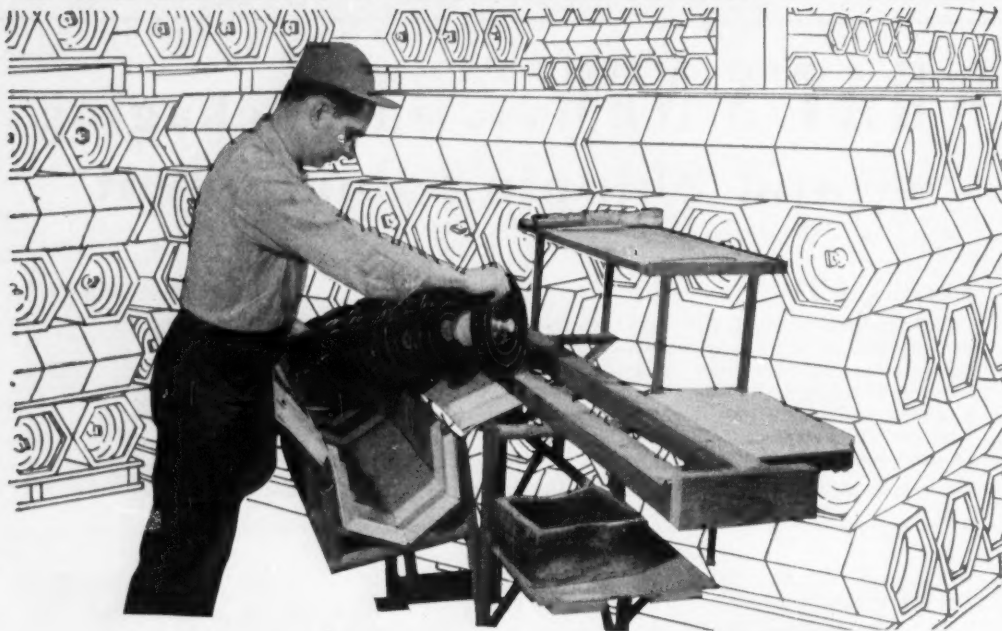
This automatic packaging machine is reported to turn out three in., four in., or six in. square packages at a speed of from 30 to 80 per min., depending on the nature of the material being packaged. Made by Packmasters, the machine can be fed by one to three operators and can incorporate a wide variety of small articles (even instruction booklets) into a single heat-sealed package.

Circle No. 183 on Reader Service Card for more information

(Continued on page 129)



# PACKAGING IN JIG TIME



**cut packaging costs 25%**

## with GENERAL ENGINEERED CONTAINERS

Packaging six porcelain insulators in a bulky nailed crate was a time-consuming two-man operation at Victor Insulators, Inc., Victor, New York. Introduction of the sturdy, lightweight General Wirebound Box and the jig-assembly system shown here enabled Victor engineers to reduce packaging to a quick efficient one-man operation, cut packaging costs by an estimated 25%.

This is only one example of hundreds of packaging problems solved each year—at a saving—in General Box Company's two fine Industrial Packaging Laboratories. General packaging experts stand ready to help *you* cut costs too. Write today for complete details.



Find out how other manufacturers are cutting packaging costs. Write for your free copy of "The General Box."

# General Box COMPANY

★ ★ ★ ★ ★  
1857 Miner Street  
Des Plaines, Ill.

Factories: Cincinnati, Denville, N.J., Detroit, East St. Louis, Kansas City, Louisville, Milwaukee; Prescott, Ark., Sheboygan; Winchendon, Mass.; General Box Company of Mississippi, Meridian, Miss.; Continental Box Company, Inc., Houston

### ENGINEERED SHIPPING CONTAINERS FOR EVERY SHIPPING NEED

Generalift Pallet Boxes  
Wirebound Crates and Boxes

Cleated Corrugated and Watkins-Type Boxes  
Corrugated Fiber Boxes

All-Bound Boxes  
Stitched Panel Crates

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## Drum Closing Press

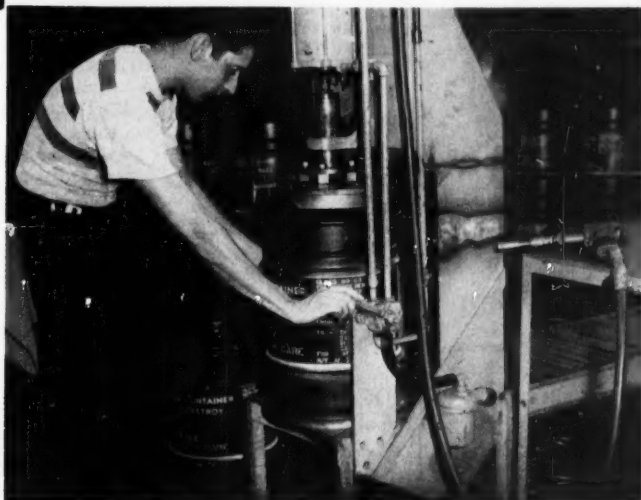
This unusual air-operated press was designed and made by Jack and Heintz, Inc., Cleveland, to make it easier to close metal shipping drums containing aircraft inverters packed in rubberized hair. Operating on 80 lb. pressure, the press acts in two directions: downward through an inner ring which presses directly on the cover of the drum; and inward by means of an outer rim which forces the ends of the drum's closing ring together for bolting. The pressing plate is spring-charged to compensate for varying depths of covers on drums.

Formerly, the same job was accomplished by use of a wooden mallet with which locking rings were pounded down, and a manually operated clamping device which pulled the closing ring tight.



**AIR OPERATED PRESS** (above) designed and made by Jack & Heintz engineers for closing metal shipping drums. Packed drums ride onto press from roller conveyor behind it.

**TWO-WAY PRESSURE** is applied to press down on the cover and to press in on the closing ring of the drum. Air wrench is used to tighten bolt which fits through lugs on ring.





MOISTURE VAPOR PROOF BARRIER, placed over a wooden box bottom starts the packaging of boom hoist actuators at Jack & Heintz, Inc., Bedford, Ohio. Four gasket holes with resilient washers built into the material insure a tight seal when the unit is bolted down. It's step No. 1 in a company's use of . . .

Flexible Barriers in . . .

## *The Fight Against Corrosion*

**W**ITHOUT a doubt, the greatest problem facing manufacturers and users of ferrous metal products is a creeping menace called corrosion. It is a problem which presents itself the instant pure metal is discharged from a furnace . . . and one which continues to be a plague as long as the metal is in use in some form.

Barrier manufacturers are constantly studying the problem of corrosion, and are developing new materials which will not only give adequate protection when properly used, but will even overcome a great deal of mishandling and mis-application. They recognize the fact, that in addition to meeting military specifications, barriers must also be designed with an eye toward providing the right kind of protection at the lowest possible cost, for products which are being shipped commercially.

### **Why Metal Corrodes**

Scrap yards are crowded with once-shiny objects now covered with reddish-brown rust . . . slowly deteriorating. If one were to scrape off this rust from any of the pieces of scrap, and chemically compare it with a sample from one of the huge piles of reddish-brown iron oxide present at all steel mills, he would find both to be of the same compound.

Reducing the iron oxide to a pure metal, in a furnace, has put it into an unstable state from which it will tend to return to its original stable form. In other words, metallic compounds are more stable than the metals from which they were formed. In corroding, refined metals are simply tending to seek that more stable state.

Oxygen is the chief element in promoting corrosion. It combines with pure metal to form the oxide, or corrosion as we know it.

Oxygen not only has the property of combining with practically every element known, but also is able to diffuse through coatings. The removal of oxygen from the atmosphere is, of course, impossible, so it is one constituent of the reaction; iron + water + oxygen = rust, which is always present.

### **How do Flexible Barriers Prevent Rust?**

Since the metal involved is also a permanent constituent of the reaction, the only course which remains open to the prevention of corrosion is the elimination of water. This can be accomplished through the use of materials like greases, oils, peelable plastics, desiccants, corrosion inhibiting vapors, and, the subject of this article, flexible barriers of many types.

Basically, there are three types of flexible barriers: water proof, moisture vapor proof and grease proof,



## THESE DRUMS WON'T TAKE A BEATING

Your own experience tells you drums are one of the most difficult loads to brace and block so they will arrive in good condition. Yet the Evans DF Loader—the Damage Free, Dunnage Free Loader—locks in drums so securely that damage, both to cars and lading, is reduced to an absolute minimum.

The DF Loader is a permanent part of the box car that *secures* loads against shifting . . . *supports* them where necessary . . . *separates* them into independently anchored sections. Because it lets shippers load cars to capacity without special bracing and dunnage, this one-man loader increases average loads by 33%, and some difficult loads by as much as 200%. By giving shippers a degree of protection unmatched with any other type of transportation, the Evans DF Loader brings back business to the

railroads. To learn how your organization can put this modern equipment to the most profitable use, consult *Evans Products Company, Railroad Loading & Equipment Division, Dept. AF-8, Plymouth, Mich.*



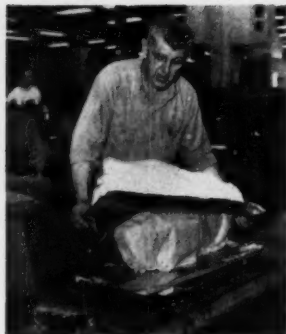
### Booklet Available on Request

Packed with factual information, it shows how railroads can earn extra revenue and shippers can cut shipping costs with time-tested DF equipment. Be sure to send for your copy today. No obligation.

... **EVANS** ... **DF LOADER** ...  ...

LOCKS LADING INTO BOX CARS  
TO ELIMINATE DAMAGE & DUNNAGE

## The Fight Against Corrosion



each with an important role in the battle against corrosion. As might be expected, there are numerous combinations of all three types, some of which are suited to several entirely different types of applications. For clarity, however, this article will treat each type as entirely separate in construction and in function.

### Water Proof Barriers

The primary function of this type barrier is to keep out liquid water such as rain or road spray, but not necessarily to hold out water vapor which might be in the atmosphere. Construction is usually of layers of kraft paper laminated with a layer of asphalt compound. For added strength, this type barrier may be supplied with a cloth backing or with cross-laid reinforcing fibres, imbedded in the adhesive.

Water proof barriers make excellent liners for boxes

and crates of all types, and may be glued, taped, or stapled depending on the requirements brought about by specific application. Generally, this type barrier is low in cost, easy to use.

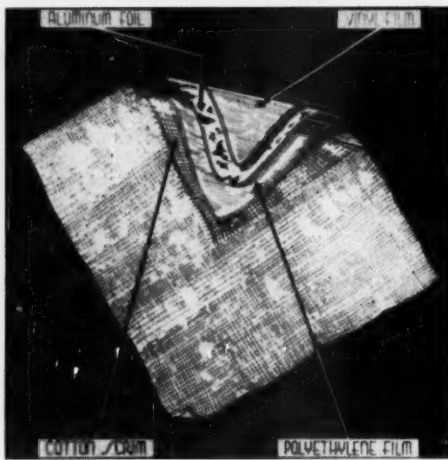
### Water Vapor Proof Barriers

The essential ingredient of this type barrier is aluminum foil, which even in the thickness of 1/1000-inch has a water vapor transmission rate so low as to be difficult to measure. However, plain aluminum foil has two draw-backs which must be overcome to make it suitable for moisture vapor proof packaging purposes: A. It does not lend itself to fabrication into sealed containers; B. It is subject to pin-holing as soon as it is folded, flexed or creased. Without adequate protection to seal them, the pin holes would present open channels for the transmission of water.

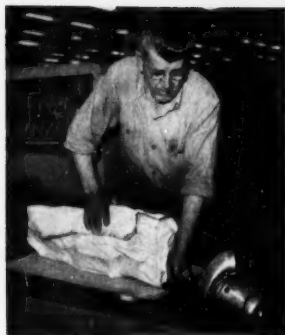
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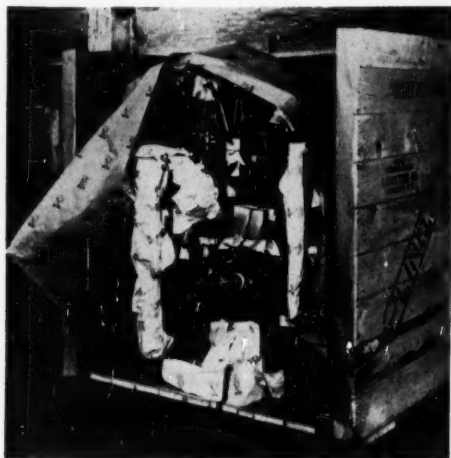
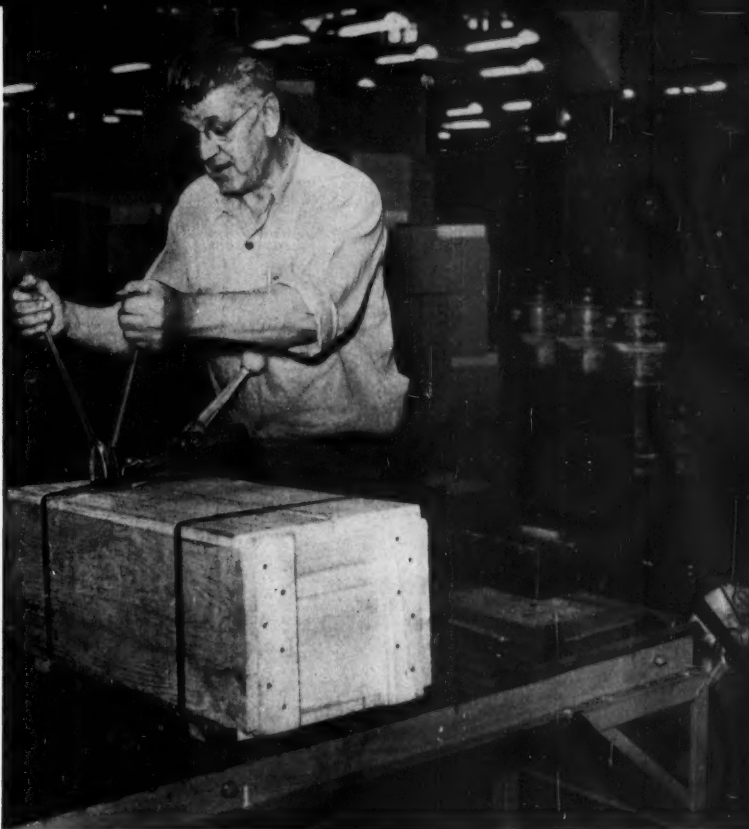
**WATER-PROOF BARRIER** shown in "layback" photo is constructed of two outer plies of kraft laminated with a layer of specially blended asphalt compound. Reinforcement is provided the material by closely formed mat of twisted fibres imbedded in the asphalt.



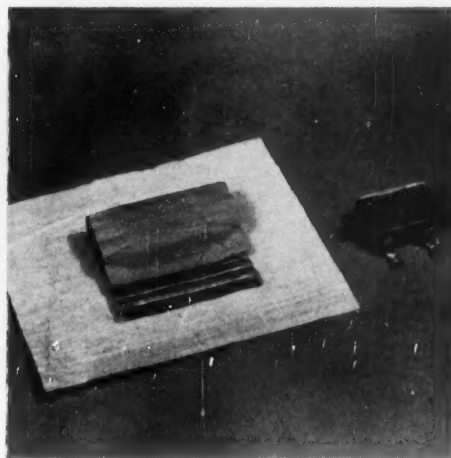
**FOUR-PLY SHEET** makes up one type of moisture vapor proof barrier. Cotton cloth (scrim) provides strength, polyethylene film provides a seal over pin holes, aluminum foil gives vapor proofness, and vinyl film makes the barrier heat sealable.



**WAX-COATED BARRIER** clings to boom hoist actuator when wrapped around (far left) to protect moisture vapor proof hood being placed over unit from vibration damage. Note that edges of the hood have been flanged for heat sealing. Hand sealer is shown in operation in middle photo. All except one corner of package is sealed. Then, air is removed with vacuum pump (above) and remainder is sealed. Cover of the box is steel strapped to make a strong, moisture proof package (right).



**V.C.I. COATED KRAFT PAPER** is wrapped around critical parts of linotype machine and then a large sheet is wrapped around entire unit to prevent corrosion. Rust inhibiting chemical on paper volatilizes slowly and infiltrates to all parts of package.

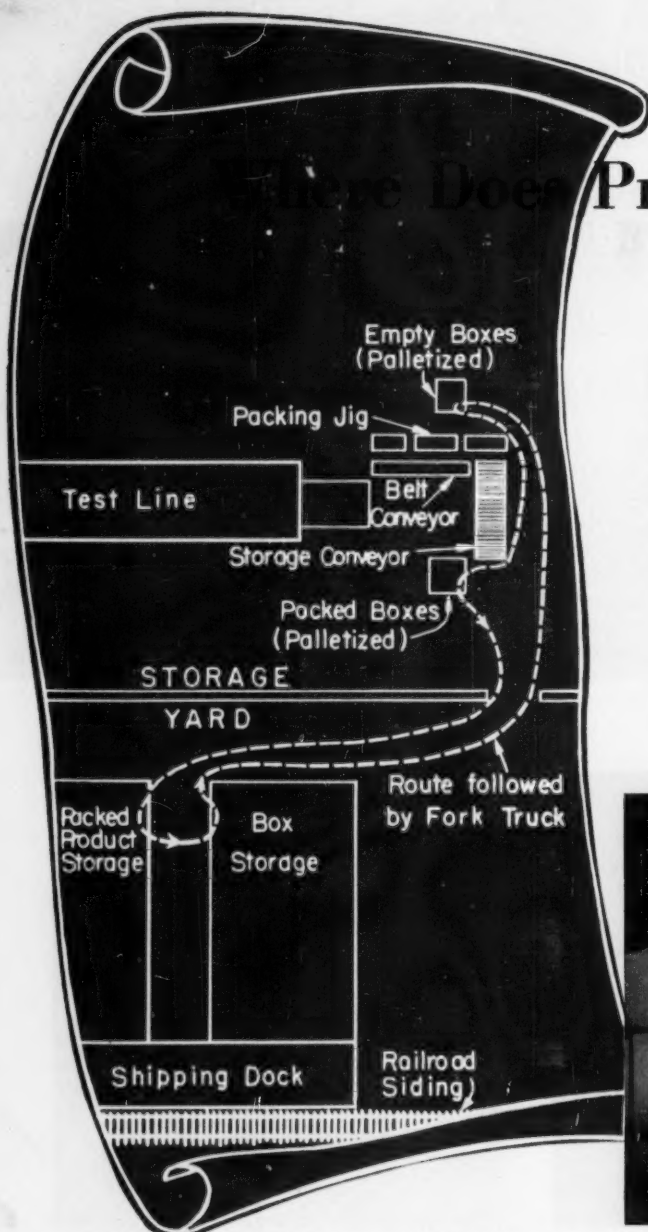


**CORRUGATED POLYETHYLENE SHEET** with flexible neutral kraft backing serves as cushioning and grease proof barrier. When inserted into moisture-vapor proof bag on which it is resting, unit will be completely protected from vibrations, shocks and moisture.



## Where Does Production End

Here's an installation where there is no breaking point between production and packaging. Final assembly and packing of high tension insulators are both done at the same time by one person.



PACKAGING AND SHIPPING AREA LAYOUT is shown in this rough sketch. Broken line indicates path of fork truck as it carries pallet loads of wirebound box mats to packing line; returns to outdoor area with pallet load of filled boxes; picks up another load of empties etc. through the cycle again.



BELT CONVEYOR carries insulators from high-voltage test through cleaning and inspection to packer. Packer assembles strings of insulators . . . in the shipping crate . . . at the same time he packages them.

## and Packaging Begin?

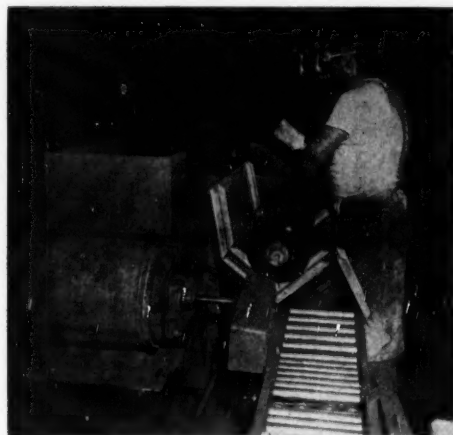
**T**WO separate jobs, final assembly and packaging of high tension line suspension insulators, both are being accomplished in a single operation at Locke Department of General Electric Co., Baltimore. A combination of the ingenuities of Locke's packaging engineer, H. C. Gladden and the manufacturer of wirebound shipping containers which Locke uses, has resulted in a packaging set-up having the following advantages:

1. Handling and packing time have been cut to the bone.
  2. Storage space required for packaged product has been reduced considerably.
  3. Safe shipping of the relatively fragile porcelain insulators is assured.
  4. Packaging and shipping costs have been reduced.
- After insulator discs have been made, and before

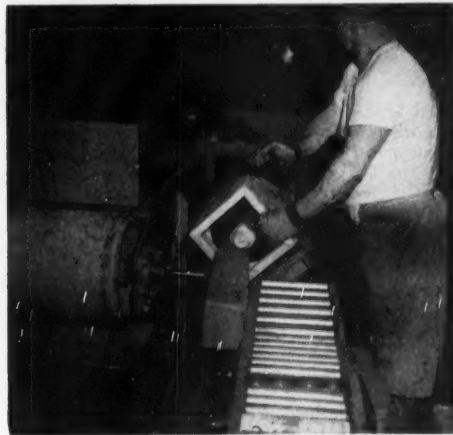
they can be assembled into "strings", they are put through a 60 cycle high-voltage test. Then, each unit is cleaned, inspected, and placed on a short belt conveyor which takes it to the packaging station. There, the discs are shunted off the conveyor onto a gathering point convenient to the assembler-packer.

### Assembling Packaging Jig

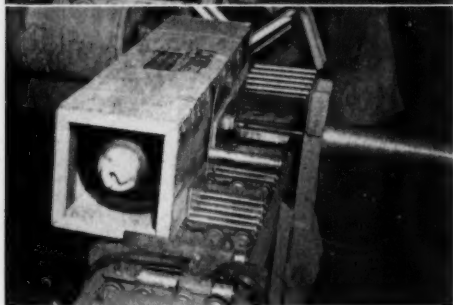
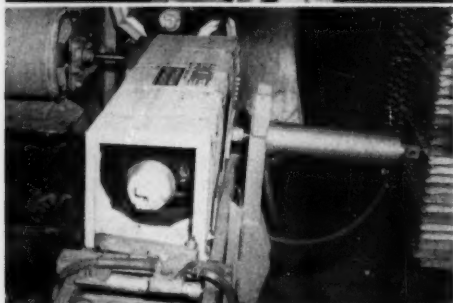
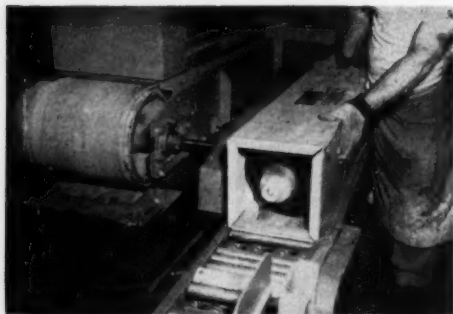
An unusual jig used by the packer, has probably done more to assure the success of the new packaging and handling system than any other single factor. The jig consists of a section of gravity roller conveyor with a back plate welded at right angles to the ends of the rollers. A foot-operated hydraulic piston raises and lowers the side of the jig nearest the packer as required. In raised position, the rollers and back plate form a perfect 90°-V into which



**ROLLER CONVEYOR PACKING JIG**, which is long enough to hold any length box required. Here, six-insulator units are assembled. The 90° V formed by jig prevents insulators from rolling off before being pinned together. Foot operated air cylinder tilts jig.



**WIREBOUND CONTAINER** is then closed by bringing ends of mat together and folding down the wire loops as shown here. Wires are not twisted on this box; the packer completes closure by engaging two simple loops. Built-in blocking eliminates need for ends.



**TRANSFERRING FILLED BOXES** from the packing jig to a storage conveyor is accomplished by an ingenious arrangement developed by H. C. Gladden, Packaging Engineer of Locke. First, the hydraulically-operated jig is tilted forward and down by means of a foot control. When the roller conveyor section is in a horizontal position, the filled box (this one weighs 77 lb.) is rolled onto an adjoining roller conveyor, clearing the jig so that the packer can start working on another string of insulators, immediately. (Photo A) From this point, movement to the storage conveyor is completely automatic. A live roller moves the box along slowly until it bumps an air switch which raises wheels mounted on a plate underneath the roller conveyor. (Photo B) As the wheels raise the box away from the rollers, the plate on which they are mounted strikes an air switch which causes a pneumatic ram to shove the box sideways onto the storage roller conveyor. (Photo C) In effect, boxes have been shunted onto a conveyor at right angles to the jig and, at the same time, they are turned sideways to permit greater numbers to be stored on the storage conveyor.

## Production and Packaging

specially designed wirebound mats can be set for packaging of the suspension insulators.

To assemble and package a string of discs, the packer first picks up a wirebound mat from a pallet load on the floor directly behind him. He lays the mat over the V-jig and places enough insulator discs (on edge) in the V to make up the length suspension insulator string currently being run. (A different size wire-bound is stocked for each length suspension insulator string, and the jig is large enough to accommodate all size boxes used). Then, to complete assembly, the packer pins the discs together in shipping containers.

To close the box, it is only necessary that the packer wrap the mat around the made-up string of discs. Wire loops at each end of the mat are brought together and engaged to provide a strong and tight closure. No end panels are required since cleats have been built into the wirebounds, near each end, to grip the end discs and to cut shifting.

### From Jig to Storage

Little effort is required for moving the packed container from the jig. Through a foot control, the packer lowers the tilted roller conveyor section to a horizontal position. A slight shove to the left sends the box onto an adjoining roller conveyor and the packer



**SELF-INKING MARKER** is used to mark each box with contents, date of packing and identity of packer, while boxes are still stored on conveyor. In background is partially made-up pallet load of filled and marked boxes for delivery to storage area located outside.

*Continued*

has cleared the jig for the next assembling-packing job. The time required for him to assemble, and package a complete suspension insulator and to move it away from the packaging area is approximately one minute.

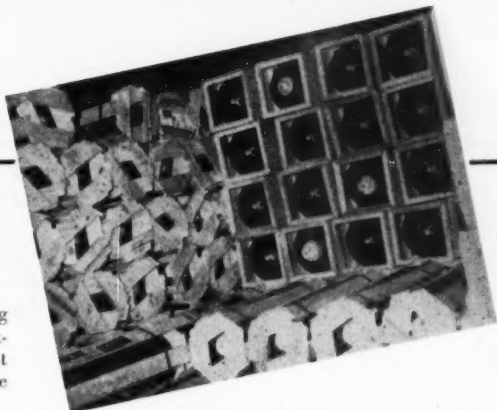
#### **Taking Boxes to Shipping Area**

Boxed insulators follow an interesting path from the packaging line to a temporary storage conveyor and then to a more permanent storage area in the yard where they await shipment. After a box has been pushed off the packing jig, a slowly turning power roller pulls it along until it gently bumps an air switch which activates an air cylinder under the conveyor.

The cylinder, with a three-inch stroke, raises a steel plate on which several rows of wheels have been mounted. At the top of the stroke, the box is completely free of the roller conveyor on which it had been moving and it rests on the rows of wheels which protrude between rollers.

At this point, the rising wheel-mounted plate presses against another air switch, this one mounted under the roller conveyor. Air is released to a piston which pushes against the side of the box, moving it onto a wide roller storage conveyor.

The ingenious arrangement of air pistons, rollers



**COMPARISON OF CONTAINERS . . .** At left and in foreground is old type, and at right is new type. Locke reports new box stacks better, faster, neater than old.

and wheels carries a box around a right angle turn and, at the same time, changes box movement from lengthwise to sideways. As a result of side-by-side storage, capacity of the storage conveyor has been greatly increased.

#### **Marking and Palletizing**

Packed boxes remain on the storage conveyor a short time, since it is actually only a collecting point from which pallet loads are built up for fork-truck movement to pre-shipment storage.

While each box is still on the conveyor, the fork truck operator marks it with: contents, date of pack-

*(Continued on page 131)*

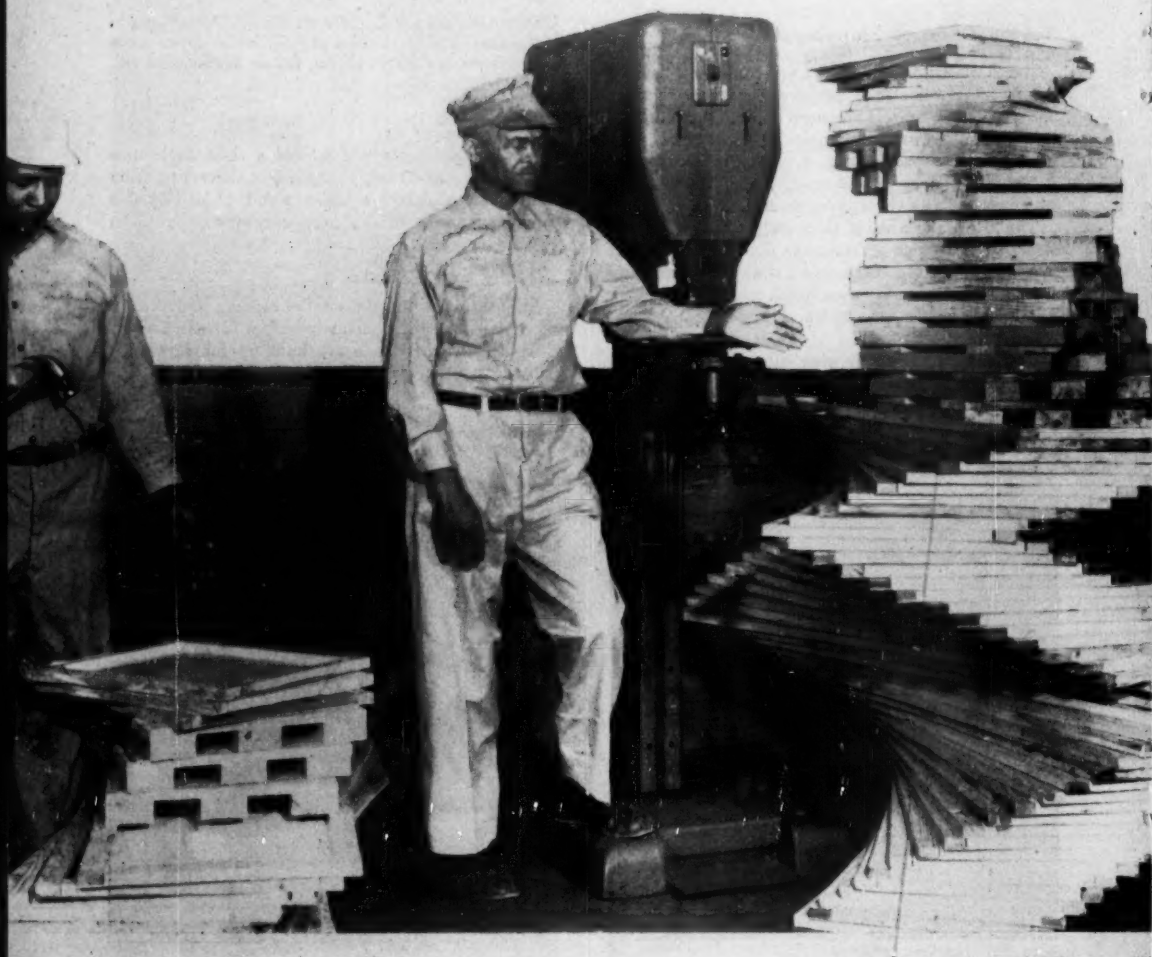


**FORK TRUCK** is shown here picking up a pallet load of packaged insulators for transportation to packaged product storage area. This same truck has the dual job of supplying packer with wirebound mats and of removing completed packages from end of packaging line.



**BEGINNING AND END** of the packaging story at Locke Department of General Electric Co. is in this yard. At left, under cover is the storage area for wirebound mats. At the right, is storage area for packed product. Proximity of two areas cuts travel of truck.

# *Mechanize the Nailing Operation*



A 300% PRODUCTION INCREASE resulted here when hand method of nailing shooks was matched with a nailing method. Stack at left has 2.9 assemblies, stack

at right is made up of 11.6 assemblies. Both represent an hour of production. A single assembly consisted of bottom skid, top, two sides, front and back of box.



**I**T is too commonly assumed by many companies who make their own nailed-wood containers that if production is not in the thousands, there is no use for automatic or semi-automatic nailing machines.

Actually, with present day equipment, it is not necessary to have large runs of one size box or crate before mechanization is called for. Wherever nails are used, nailing machines can be fitted into operations to help achieve greater speed, greater efficiency and better nailing jobs. Any type of nail can be driven by equipment which is available, and some types of machines even go so far as to make their own nails.

A "battle" recently conducted between a man and a machine produced interesting results. It showed how automatic nailing equipment could increase output

clocked at 5.17 min. per assembly, while 20.60 min. were required for each hand-nailed job. The machine produced the skid part alone in only 45 seconds as compared to over four min. for hand nailing. Furthermore, the nails driven mechanically were sent home under a pressure of 1000 lb., thus effecting enormous friction between the members nailed, making the assemblies rigid. Waste was cut dramatically . . . there were no bent or dropped nails, no split wood, and knots were taken in stride.

#### Types of machines

Where several sizes of boxes or crates are required and little box storage space is available, it is important that the right type of machine be used, and that

*"Nailing machines are flexible, are adjusted simply and quickly enough to fit them economically into jobs heretofore thought impossible"*

more than 300% in the manufacture of shooks!

At the plant where the "battle" was waged, a nailing machine and operator were pitted against "the fastest man in the plant with a hammer." Assemblies consisted of a bottom skid, top, two sides, front and back. In an hour's run, the mechanized arrangement resulted in 11.6 shook assemblies. During that time, the speedy hammer wielder, plainly showing fatigue, put together only 2.9 assemblies.

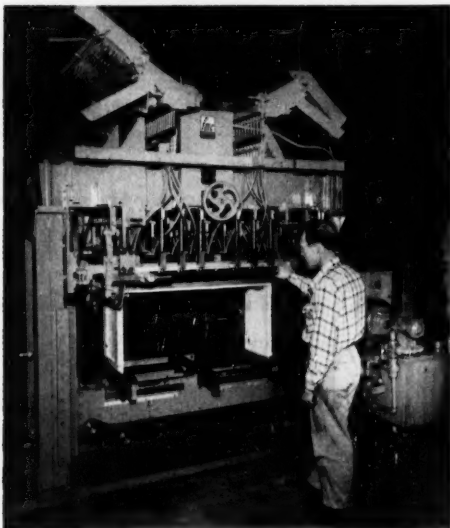
During the contest, the machine-nailed shooks were

it be incorporated into a well-planned, efficient layout.

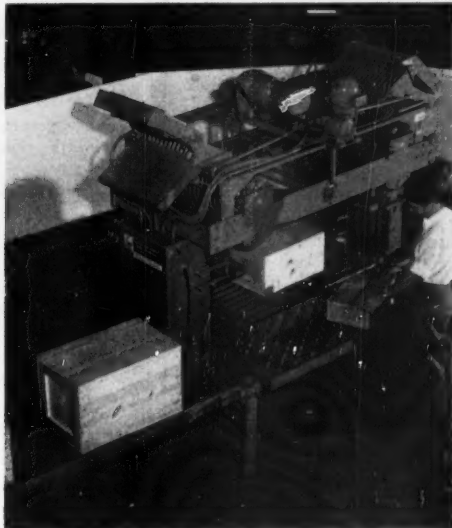
Nailing machines may be divided into three general classifications: edge nailers, center line nailers and box framers.

Edge nailers permit work to pass across the front of the machine from side to side and are limited in use to straight line or single staggered line nail drive. Open back edge nailers are available which permit work to pass through the machine from front to back.

*(More on next page)*



**BOX FRAMER** completely frames a box on only three machine strokes. Minimum size this unit can nail is 9" x 9" x 19 1/2". Maximum size box is 26" x 26" x 50".



**BOX LIDDER** automatically adjusts itself to end-nail lids on boxes of a wide range of sizes and shapes. Note variety being accommodated in above photograph.



*Announcing...*  
**THE**  
**B-Line**  
*Portable*  
**PAPER CUTTER**  
*...brings the paper*  
*to the job!*

The problem of conveniently handling large rolls of kraft wrapping paper is solved! Pictured here is the new B-Line Portable Paper Cutter, that brings the paper to the job in any part of your warehouse or factory, or wheel it easily on its rubber tired wheels right into a railroad boxcar. It can be used in either horizontal or vertical position.

The B-Line Portable Paper Cutter is available in two models. Model B-48 will handle a 36" or 48" roll. Model B-72 will handle the 60" or 72". Above models for 9 to 10 inch diameter rolls of kraft paper.

The B-Line Portable Paper Cutter rolls easily on rubber tired wheels, has sturdy construction that will give years of service. It saves time, labor and money. The B-Line Portable Paper Cutter is a valuable piece of equipment in any plant where larger rolls of kraft paper are used.

**WRITE FOR  
 ILLUSTRATED FOLDER**

**S. J. Bina Co.**  
**GRAND FORKS, N. Dak.**

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 122

## NAILING OPERATION

*Continued*

Center line nailers are generally open back types and work must pass through from front to back. These have the advantage of providing a flexible pattern. Both center line and edge nailers may be equipped with attachments to clinch nails when necessary.

Box framers, as the name indicates, are single purpose machines. They are usually provided with automatic clamps and nail cycling devices and will drive all the nails in one surface of a box at one stroke. In addition, a box framer automatically compensates for a difference in dimension between depth and width.

Each of the above classes may be further divided into types based on the use to which the machine will be put, such as cleating, general purpose nailing, lidding, etc. Cleaters are usually smaller machines used to nail cleats to shoo to make box ends. Framers are used for nailing sides and, or bottoms to ends in the assembly of a box. General purpose nailers can be used for cleating, framing, or lidding with a minimum amount of change-over to handle each type of nailing job. Lidders are used only to nail lids on boxes after they have been packed.

### Study Requirements

Before you can intelligently determine the types and number of machines required you should have answers for the following questions:

1. How many boxes (or nailed items) are required per hr. or per day?
2. Do storage facilities permit large runs of one size to be made, or must a number of sizes be made each day?
3. Is clinching required?
4. How much space is available?
5. How much money is to be invested?

If only one size of item is to be nailed, there is probably an automatic or semi-automatic machine which can be adapted to the operation. This, of course, will

Why not **PRINT** and  
**ADDRESS** your  
 labels in one  
operation?



The Weber KC-E  
 Label Printing  
 and  
 Addressing  
 Machine

### SOLVES MULTIPLE ADDRESSING PROBLEM. SAVES COST OF PRE-PRINTED LABELS.

How long does it take one girl to prepare 50 shipping labels with the same address and shipping information? 5, 8, 10 minutes? The Weber KC-E machine will do it in 30 seconds and will print the label form at the same time! Multiply these savings in time, labor, and material by the number of quantity shipments you make each week and you'll immediately see why this modern machine is in such great demand.

If your company is now preparing quantities of shipping or product identification labels with the same information, whether it's 25, 50, or 1,000 labels at a time, it will pay you to investigate the advantages of the Weber KC-E. A "trial-rental" plan offers you the opportunity of giving the machine an on-the-job test at a nominal cost.

# Weber

**LABEL AND MARKING SYSTEMS**  
 Division of Weber Addressing Machine Co.

Mail coupon for free sample packet of labels printed by KC-E Machine and detailed information.

**Weber Label and Marking Systems**  
 Dept. F-1 Mount Prospect, Illinois

- ☐ Send sample labels and more information.  
☐ We would like to see the machine in action.

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

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## NAILING OPERATION

*Continued*

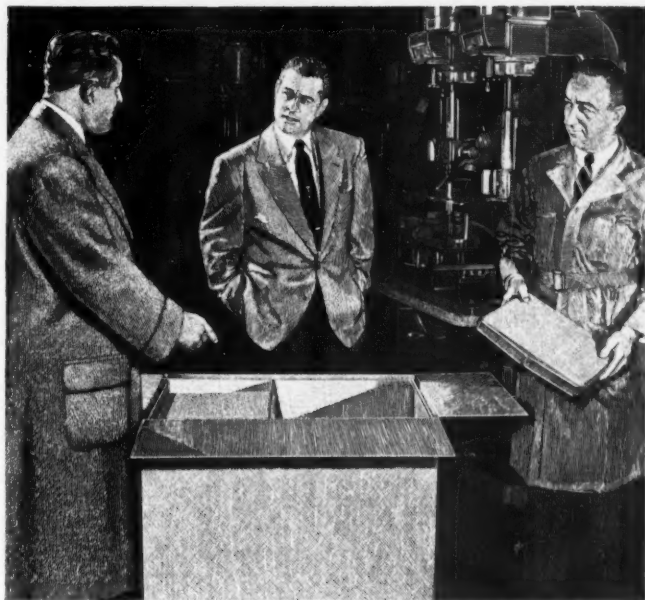
give the greatest production per man-hour. If great production is not of topmost importance, but initial cost is, then a general purpose machine might be called for. In such instances, special jigs and fixtures can often be designed by the manufacturer to increase production. This is the most efficient machine to use when several types and sizes of items are required and when change-over from one to another is frequent.

A decision as to the use of an edge or center-line nailer will depend upon the space available and the layout. Often, in a layout using several machines, both types are needed.

### Get the Most Out of A Machine

To keep nailing machines operating at top efficiency for a long period of time, proper maintenance is of top importance. A few minutes spent each day cleaning your equipment and providing proper lubrication will result in increased operating efficiency and life. Maintenance manuals are provided as guides to nailing machine maintenance, but one of the most costly errors possible occurs if operators are not allowed time for, or if supervisors do not insist on, thorough maintenance.

Nailing machines are flexible, are adjusted quickly and simply enough to fit economically into jobs thought impossible heretofore. Manufacturers of machines are prepared to supply standard equipment where it will serve best, or to design and build to specific requirements. If you use nails in your packaging operations, you owe it to yourself to investigate the possibility of mechanization. It could result in higher quality of boxes and savings, which you didn't think possible.



## Put A Gaylord Man On Your Team... It Pays Off In Reduced Packing Costs

One manufacturer is saving 75% in packing costs and 55% in container weight with his new Gaylord-designed "package."\*

Your savings may not be as great... but a Gaylord man, working with management, design, production and purchasing, is almost certain to come up with cost-cutting suggestions for tough packing problems.

Look in the classified pages of your phone book under "Boxes (Gaylord)" for the Sales Office nearest you.

\*Name and address on request.



Their seen and unseen quality gives you an extra margin of safety.

### GAYLORD CONTAINER CORPORATION

General Offices: ST. LOUIS • Sales Offices Coast-to-Coast



CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT BAGS AND SACKS • KRAFT PAPER AND SPECIALTIES

Circle No. 50 on Reader Service Card for more information

SIPMHE and MIT

work together to provide . . .

## Further Education for Packagers



ADVISORY COMMITTEE charged with aiding MIT and SIPMHE in creating short course curriculum consists of: (Front row l. to r.) John W. Kraus, Thompson Products Co., chairman; C. J. Carney, Managing Director of SIPMHE; Prof. John E. Arnold of MIT. In the rear row (l. to r.) Walter Hueg, Coro, Inc.; Max Hill, V.P., SIPMHE New England Chapter; Walter J. Byrd, Standard Brands, Inc.; Joseph L. Krager, Jr., Radio Corp. of America.

A more comprehensive curriculum than in previous years will be presented by the technical short course training program to be presented in conjunction with the eighth annual Industrial Packaging and Material Handling Exposition in Boston, Oct. 20, 21, 22.

Sponsored jointly by the Society of Industrial Packaging and Material Handling Engineers and the Massachusetts Institute of Technology, the course will include a total of 17 sessions with separate groups of lectures for different management levels.

It was announced by John W. Kraus, of Thompson Products, Inc., who is chairman of the advisory committee to aid in creating the curriculum, that a new feature to be introduced will be a complete and special series of lectures and training on "Packaging Fundamentals". It will be especially designed for personnel such as packing and shipping overseers and supervisors. "Many of the persons whom we will reach through this special series on fundamentals are future packaging engineers," Kraus stated. "We feel that it is essential that this group be given a scientific background in the whys and wherefores of protective packaging so that they will have a better understanding of their jobs."

Concurrent with the special series of lectures on packaging fundamentals will be a complete series of advanced lectures. This group will be more technical in nature and topics. It is being designed for the experienced engineer in protective packaging and in material handling.

General sessions will be held for top management executives. They will stress case history examples of the great economic importance of scientific package and material handling engineering in the general industrial picture and in moving products from the assembly line to the consumer.



Do you use barrier wraps?  
Then you need the new  
**DERBY BW  
BARRIER  
WRAP  
MEASURING  
DISPENSERS**

The Derby BW Dispensers eliminate the slow, messy, expensive Barrier Wrap handling problem and provide a substantial saving in time, labor and material. Large rolls may be converted into the exact widths and lengths desired in one single operation.

Available in models to accommodate 4", 6", 8", 12" and 14" rolls and equipped with Universal Slitter to deliver a variety of desired widths and definite lengths.

For further information  
write Dept. F

**DERBY SEALERS, INC. DERBY, CONNECTICUT**

Circle No. 37 on Reader Service Card for more information

NOW *from a single source* A COMPLETE PACKAGING SERVICE!  
— CARLOAD TO PARCEL POST —

## GERRARD offers Round and Flat Steel Strapping

**WE HAVE NOW ADDED** Flat Steel Strapping in five heavy duty sizes to our line of package reinforcements. This Flat Strapping is designed for tying heavy loads and for carload reinforcement, and the Gerrard tools for stretching and sealing Flat Steel Strapping are the most modern and efficient now being made.

The addition of Flat Strapping to our line permits us to offer a *complete* packaging serv-

## Automatic Twine Sealing Bag Ties Tackers and Staplers

ice for all types of packaging from light parcel post to the heaviest shipped units.

Contact a Gerrard Packaging Engineer for full information about the grade and type of Gerrard Steel Strapping and the type of Gerrard Machine that will best fit your particular tying needs. His advice on your packaging problems puts you under no obligation. Write for free literature about any or all phases of our packaging service.



### GERRARD'S Complete Packaging Service includes:

**ROUND STEEL STRAPPING** From 8 gauge for carload reinforcement and palletizing to 18½ gauge for small parts, cartons and parcel post packages. May be applied with either hand-operated or semi-automatic Gerrard machines.



**FLAT STEEL STRAPPING** In five heavy duty sizes for palletizing and carload reinforcement.

**AUTOMATIC TWINE SEALING** In several weights for bundling mail, K D containers, and a wide variety of light materials. Gerrard Twine Sealer fastens the twine with a slip-proof metal seal.



**BAG TIES** 12 to 21 gauge wire for tying bags of every material and for bundling posts, rods, pipe, and numerous other applications.

**TACKERS AND STAPLERS** In 7 models for both general and special uses.



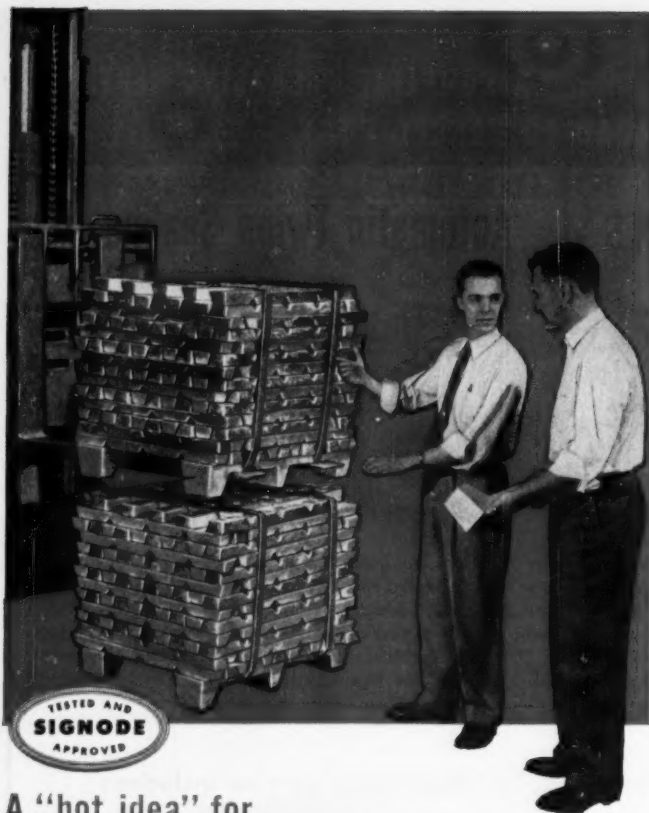
GERRARD STEEL STRAPPING DIVISION, UNITED STATES STEEL CORPORATION  
2937 West 47th Street, Chicago 32, Ill.

## U·S·S GERRARD STEEL STRAPPING

UNITED STATES STEEL

Circle No. 55 on Reader Service Card for more information





## A "hot idea" for self-palletizing hot zinc ingots

**Another example of packaging magic done  
with Signode Steel Strapping!**

Hot ingots once were formidable foes when you tried to package them for fast, safe handling. Then Signode gave a practical twist to a basic handling method and the answer was found!

Special molds were designed to form the basic legs, allowing complete self palletization of the units. Other ingots, still hot, were stacked on this base. The entire unit was strapped with Signode material—saving an astonishing amount of man power and tonnage, and ending the need for pallets.

How can you use Signode's broad knowledge of *basic unitizing methods*? Find out now! Our Signode fieldman will help you decide—without obligating you in any way. Write Signode Steel Strapping Co., 2618 N. Western Ave., Chicago 47, Ill. Offices coast to coast. In Canada: Canadian Steel Strapping Co., Ltd. Foreign subsidiaries and distributors world-wide.

# SIGNODE Steel Strapping Co.

SEND FOR FOLDER SHOWING 6 BASIC WAYS OF UNITIZING  
Circle No. 110 on Reader Service Card for more information

## CORROSION . . .

(Continued from page 114)

To solve both problems, flexible plastic film is usually bonded onto one surface of the foil to permit heat sealing and at the same time to provide a seal over the pin-holes which are bound to form in foil during the packaging operation. For greater strength and flexibility, cotton cloth backing is often laminated to the barrier.

It is virtually a foregone conclusion that all moisture vapor proof barrier material will contain optical pin-holes by the time it reaches the field in the form of a finished package. Research done by the Naval Air Experimental Station in Philadelphia Navy Yard in cooperation with manufacturers of barriers has established the fact that such optical pin-holes, in the absence of liquid leakers, does not impair the product beyond its useful limit. In fact, the flexed W. V. T. R. (Water Vapor Transmission Rate) of certain materials becomes a guarantee of this property.

## Removal of Air

Normally after a package is essentially complete, one corner of the final seal is left open and a suction apparatus is inserted to remove excess air and provide a snug fit of barrier material around the interior package. The apparatus is then removed and the final closure quickly effected so that no unnecessary moisture is allowed to remain in the sealed package.

In using this procedure, it is important to remember that the purpose of this type of closure is not to provide a vacuum pack. It is easy to see, that with an irregularly shaped object having sharp points or corners, too high a vacuum is likely to result in damage of the barrier material itself. If, after a seal has been made, there is any evidence of a slight loss of vacuum, one need not be too greatly concerned. Moisture vapor barrier material is not designed to hold a vacuum and should not be expected to do so. It will do its job adequately without requiring such extreme performance.

(More on page 128)

AUGUST, 1953 • FLOW



## REYNOLDS ALUMINUM FOIL PACKAGING

Every product has its points of sale... PA's desk, hardware shelf, department store display, garage stock room. And there the package is your salesman. That's true whether your customer is Joe Consumer, or the garageman who buys for Joe Consumer... and proudly shows him the package. It's true whether the package gets opened by a tool room clerk or a master machinist. The time is past when any manufacturer can afford to hide his product under an old-fashioned bushel.

That's why Industry is taking to heart the spectacular sales lessons of Reynolds Aluminum Foil packaging for foods, candy, gum, tobacco. Nothing protects like foil and *nothing sells like foil*.

Quality *looks* the part, in foil. Whatever story the package must tell—directions, measurements—becomes a fresh *new* story that inspires confidence.

Reynolds, world's largest producers of aluminum foil, offers a complete Packaging Service... unequalled experience in package and art design, in color printing on foil, in development of special foil materials. Your product may greatly enhance its sales appeal by simply wrapping in plain or embossed foil. Or a sales analysis may recommend foil-laminated pouches, overwraps, cartons or cannisters. For expert analysis, call the nearest Reynolds Sales Office. Or write **Reynolds Metals Company**, General Sales Office, Louisville 1, Ky.



TRAVELING DEMONSTRATOR  
OF INDUSTRIAL PACKAGING  
... CIVILIAN AND MILITARY!

New industrial packaging developments shown. Government-specified methods of foil and laminated foil packaging demonstrated with actual military products and parts. Write for *Coach Itinerary!*

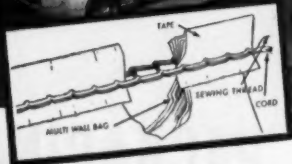
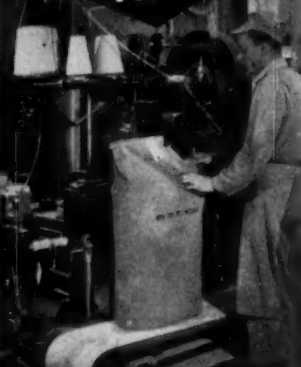
# REYNOLDS ALUMINUM

"MR. PEEPERS" returns September 13th on NBC-TV

Circle No. 105 on Reader Service Card for more information

## Tape-Bound Closures for Multiwall Paper Bags!

**LOW-COST  
SECURE  
FAST**



**UNION SPECIAL** Style 21800 H Bag Closing Machines, with Style 80600 H sewing heads, shown here, are heavy-duty, high production units for making low cost tape-bound closures on large multiwall paper bags.

A single foot pedal controls synchronized conveyor and sewing head. Automatic tape cutter on sewing head saves time and helps make operation smooth and easy to learn.

Sewing head and conveyor are quickly adjustable for varying bag heights and scale or platform height from floor. Entire unit is ruggedly built for dependable service in high-volume production.



**Ask for a copy of this Bulletin**

It's easy to find just the right unit to meet your individual needs in Union Special's big line of bag closing machines. Ask for a copy of Bulletin No. 200, "UNION SPECIAL FILLED BAG CLOSING MACHINES"

**Union Special  
MACHINE COMPANY**

415 N. FRANKLIN ST., CHICAGO 10, ILL.  
Circle No. 120 on Reader Service Card

## CORROSION

*Continued*

### Grease Proof Barriers

Although not a corrosion fighting material in the same sense as those previously mentioned in this article, grease proof barriers fit into the picture in an important way. Usually, these barriers consist of wax-coated kraft papers or papers laminated with such films as acetate, glassine or polyethylene. Their primary function is to act as a retainer for preservative oil or grease which has been used as a coating on a metal part. In addition to their applications in packaging for shipping, grease proof barriers are used extensively to protect parts (and workers' clothing as well) during in-plant handling.

### Inhibitor-Barrier Combinations

Among latest developments in barriers, are foils, kraft papers, and combinations of both which have been treated with volatile corrosion inhibitors. When used as pouches or as liners for containers, these barriers not only protect against entrance of excess moisture, but also prevent rusting from occurring as a result of moisture already in the package.

An even further development of this idea adds protection against damage due to shocks and bumps. This is accomplished with cushioned bags, made of kraft, lined with a volatile corrosion inhibitor.

There seems to be no end in sight yet to the advance of barriers in the fight against corrosion. Now undergoing experimental study is a barrier composed of heavy gauge (15 mils or more), unsupported polyethylene film. Right now, the product is being particularly considered for short term storage applications. We can also expect to see, in the not too distant future, aluminum foil pouches, which, although lined with a volatile corrosion inhibitor, will be heat sealable.

For material contained in the preceding survey, FLOW'S thanks to the following: Angier Corp.; The Dobeckmun Co.; The Floyd A. Holes Co.; Jack & Heintz, Inc.; Nox Rust Chemical Corp.; Plastic Film Corp.; Reynolds Metals Co.; Sherman Paper Products Corp.; The Sisakraft Co.; Thilmany Pulp & Paper Co.

Circle No. 67 on Reader Service Card

**SAVE 20%  
on sealing costs!**



### "Dial" gummed tape electrically

The new Marsh Dial-Taper is real news to users of gummed tape. Dispenses all kinds, in widths to 3", electrically. Select your length on the telephone-type dial, dial it, and out it shoots moistened with warm water. Sticks instantly. Saves 1/5 on tape, often more in man-hours.

For more information or a free demonstration mail us this ad with your name and business letterhead

**MARSH Electric  
Dial-Taper**

MARSH STENCIL MACHINE COMPANY  
67 MARSH BLDG. • BELLEVILLE, ILL.

# SEE:

- 1. New American "King-Size" Wirebounds**  
First to package larger, heavier equipment for less.
- 2. New American Wirebound "Bottle Case"**  
First to handle bottles in lighter, lower cost container.

Send your product for a sample packing and quotation. No cost, no obligation. Details on request. Write today!

★ One of the nation's leading designers and manufacturers of wire-bound, wood-crested panel and nailed-wood containers.

**THE American  
BOX CO.**

1909 W. 3rd St., Cleveland 13, Ohio  
Phone: SU 1-5200  
Marion, South Carolina

Circle No. 117 on Reader Service Card  
AUGUST, 1953 • FLOW

## NEW PACKAGING & SHIPPING EQUIPMENT . . .

(Continued from page 109)

### Dispensers for Tapes Up to 8 Inches Wide

The Hi-Duty Model 88-8 dispensers of Derby Sealers, Inc., is designed to dispense pressure-sensitive tapes up to eight inches wide. A crank-feed mechanism supplies the necessary leverage to overcome the tackiest tapes. The gearing that determines tape length delivered by one revolution of the crank is custom-made to suit the special requirements of any job. Where multi-pieces of tape or color separation is needed, multiple narrow rolls may be dispensed simultaneously.

Circle 184 on Reader Service Card for more information

### Space Saving Valve Bag

A shaped valve-type bag for carbon black cuts storage and shipping space requirements by 25% according to J. M. Huber Corp. The bag is said

## NEW! REVOLUTIONARY!



### Cycle Numbering and Marking ROBOT

Automatic multiple marking unit . . . installs on production line. Prints in cycle: dates, code numbers, serial numbers, groups of numbers in combination . . . in various positions . . . on products, cans, containers, packages, cards, etc. Write for specification sheet and catalog.

Mounted on platform with automatic slide for multiple numbering of work cards.



**WM. A. FORCE**  
& COMPANY, INCORPORATED  
216 NICHOLS AVENUE, BROOKLYN 5, N. Y.

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**FLOW • AUGUST, 1953**

# Only FIBREEN

**TAKES THIS BEATING...**



## ...and COMPLETELY PROTECTS YOUR SHIPMENT!

**For shipping metal goods, textiles, furniture, leather, rubber, wood products, foods in containers, etc.**

### Fibreen gives you

- **Protection against rough handling**—Rugged Fibreen resists rips, cracks, and punctures— it's reinforced with tough, closely cross-laid fibres of steel-like strength.
- **Protection against water and moisture**—Double-layers of highest quality, waterproof, pliable adhesive prevent moisture penetration.
- **Protection against dust and grit**—Both top and bottom sheets are surface-treated top-grade No. 1 Kraft.

### —and Fibreen is

- **Easy-to-handle**—It's flexible and is quickly formed around contours. Saves time and labor.
- **Light weight**—Makes a compact package—reduces shipping and storage costs.
- **Low in cost**—Available in widths of 36", 42", 48", 54", 60", 72", 84", and 96" . . . also with a new non-asphaltic adhesive.

**SEE FOR YOURSELF!** Send for free samples of Fibreen—specialized for different shipping problems . . . in asphaltic and non-asphaltic grades. Test them yourself! If you'd like a free 28-page book covering packaging methods in almost every industry, please indicate. Write Dept.



A product of  
**THE SISALKRAFT CO.**  
Chicago 6, Ill.

New York 17, N. Y. • San Francisco 5, Calif.

Circle No. 112 on Reader Service Card for more information



Circle No. 60 on Reader Service Card for more information

## Low-cost conveyor attachment marks cartons, cases automatically



Save man-hours now used for manual marking. Attach a ROLACODER Imprinter to conveyor or case-sealer and eliminate the cost of stencilling or rubber-stamping. Get neater, cleaner, more accurate marking, too. Friction-operated, self-inking. Copy changes made in minutes. Pays for itself in weeks.

Write for ROLACODER brochure showing models to imprint top, sides of every kind of package.

**ADOLPH GOTTSCHO, INC.**  
Hillside 5, N. J.

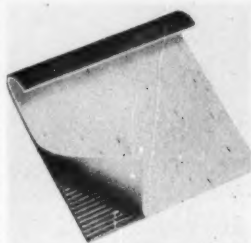


to permit construction of sturdy, compact unit loads of carbon black that hold up better in transit, and are easy to unload and store. Shaped bags are passed through a de-airing process that forces air out of each bag of black.

Circle 185 on Reader Service Card for more information

## Combination Cushioning Material

Said to combine the advantages of the outside shock resistance of flexible corrugated paper board and the inside soft, non-abrasive cushioning of creped wadding, "Chippa-flex lined with Kim-pak" has been announced by Chippewa Paper Products Co., Inc. The product is said to have important applications in shipping articles with highly polished wood surfaces, items with highly polished metal surfaces, and delicate articles of any kind. The corrugated paper board, Chippa-flex, is a standard product of Chippewa Paper Products Co. The creped wadding cushioning, Kim-pak, is a product of Kimberly Clark Corp.



Circle 186 on Reader Service Card for more information

## "HELP WANTED"

if your  
cartons  
come  
to  
your  
customers  
like  
this



a *Counterboy* man!

N. Campanaro, a typical Counterboy man, has 26 years' experience solving all sorts of packing and sealing problems. His service to national shippers started in 1927 in the Philadelphia area. In 1930 eastern Pennsylvania was included. In 1939, he handled the Cleveland area and, since 1941, bustling New England with headquarters in Boston.



There are 30 Better Packages' field experts - with a total of over 350 years of accumulative service to shippers in the U.S. and Canada.

These men can help you. Their "know-how" of shipping room procedure, materials and operations is at your service - with no obligation to you. Mail coupon for our helpful bulletins or call the nearest Better Packages' Agency listed in your phone book.

- Investigation shows that typical shippers usually:
- Fail to reactivate all glue on sealing tape;
- Fail to take advantage of special purpose tapes;
- Fail to tape correctly for maximum strength;
- Fail to conserve labor in handling tapes; and
- Fail to comply with Rules 41 and 38 in sealing cartons correctly.

### Write for Free Technical Bulletins:

- **BETTER PACKAGES, INC.**
- Plant No. 1D, 253 Canal St., Shelton, Conn.
- ☐ #3 Tape Moistening Requirements for Various Carton Surfaces
- ☐ #5 Gummed Tape Glues and Adhesives
- ☐ #6 Sealing Carton Corners
- ☐ #7 Superiority of Gummed Tape Closure
- ☐ #9 Tape Applications—Building Strength from Weakness
- ☐ #12 Carton Sealing—The Easy Way
- ☐ #13 Parcel Post Wrap
- ☒ Have a Counterboy Man Call on Me!

COMPANY \_\_\_\_\_  
SIGNED \_\_\_\_\_ TITLE \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

*Better Packages, Inc.*

WORLD'S LARGEST MANUFACTURERS OF TAPE DISPENSERS • SHELTON, CONN.

Circle No. 22 on Reader Service Card for more information



## PRODUCTION-PACKAGING

(Continued from page 119)

ing, and identity of packer, using a self-inking hand marking device. Then he palletizes the boxes, 16 to a pallet.

The route of the fork truck is relatively short and efficient. Picking up a loaded pallet at the end of the packaging line, the truck driver carries it outdoors to a storage area near the freight terminal. After depositing the load, he needs travel only a few feet to an adjoining roofed-in area where palletized wirebound mats in all required sizes are stored (see flow diagram on first page). These he takes to the packaging area and deposits behind the packer.

He then returns to the storage conveyor, marks more boxes, builds another pallet load, takes it to outdoor storage . . . etc., through the same cycle as before.

### How it Came About

Motivation behind the planning of this new method of packaging and handling at Locke was largely a decision by the company's engineers to find a container to replace an inadequate type formerly used, a close fitting hexagonal shape which necessitated special handling equipment.

The new box is an open end wirebound, 10-inches square by 36-inches long, using cleats to lock the insulators in position. Wires on the box are galvanized to eliminate rusting. The box-side completely protect the insulators as well as keep them clean in storage.

The square shape of the new box has made handling and stacking easier, and has decreased storage space 30%. The most important advantages have been cost reduction; reduction in packing time by 39%; and reduction by 3½% of the gross freight shipped.

For the preceding information: FLOW'S thanks to H. C. Gladden, Packaging Engineer, Locke Department, General Electric Co., and to General Box Co. which cooperated in perfecting the wire-bound containers and the packaging arrangement described.

Circle No. 36 on Reader Service Card for more information

# 1 man



## handles Sheet Steel

*Faster. Easier*  
with a

## C-F LIFTER

C-F Lifters, under one man operation, pick up, carry and unload more sheet steel tonnage per hour than any other method — and at lower cost per ton. Wide carrying angles hold sheets securely — won't damage high grade sheets; tong action insures safe carrying; fast opening and closing adjustments of Lifter jaws permit shifting from one size pack to another in seconds. C-F Lifters are made in standard or semi-special models to handle from 2 to 60 tons.



Write for Bulletin SL-28 for specific examples of C-F Lifter operation and economy.

**CULLEN-FRIESTEDT CO.**  
1320 SOUTH KILBOURN AVENUE • CHICAGO 23, ILLINOIS





**Power**  
TO FIT THE  
JOB

**Power**  
TO FIT THE  
MACHINE

## WISCONSIN -POWERED

# Xpediter

Load 'er up, then move fast! The Xpediter, built by Kalamazoo Mfg. Co., Kalamazoo, Mich., carries 800 lbs. at speeds up to 8½ mph. POWER is a Wisconsin Heavy-Duty Air-Cooled Engine.

Today, almost every warehouse or plant needs and uses one or more cost-cutting pieces of Wisconsin-powered equipment. And a good reason for such acceptance stems from this fact: Every equipment builder can select the right size Wisconsin Engine because of the wide model range . . . single-cylinder, 2-cylinder or V-type 4-cylinder models, 3 to 36 hp. Because the engine is right for the job . . . it delivers better lugging power due to the best relationship of horsepower to torque.

Write today for a helpful booklet titled, "Which Engine Should Power Your Equipment?"



**WISCONSIN MOTOR CORPORATION**  
World's Largest Builders of Heavy-Duty Air-Cooled Engines  
MILWAUKEE 46, WISCONSIN

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Circle No. 85 on Reader Service Card

**MERRILL  
MATERIALS HANDLING  
DEVICES**



LIFTING CLAMP

TWIN LIFTER



HAND GRIP

DRUM FILTER

4 SIZES



344-4

**MERRILL BROTHERS**  
56-35 ARNOLD AVENUE  
MASPETH, N. Y.

**HYGROSCOPIC MATERIALS**

(Continued from page 63)

To feed the pulverizer, material contained in a bag is emptied into the hopper of a push-button operated bag dumper. Then, it is raised and discharged into the feed hopper of the mill. The bag-dumper raises a load, discharges it and returns for re-filling in a 1 1/4 minute cycle.

By pneumatic feed control, calcined magnesite flows into the mill where three rolls pulverize it to whatever grade has been specified. When it has reached the proper fineness, it is picked up by suction of a fan mounted over the pulverizer and carried to a separator where the finished product settles and flows by gravity through a bag filling nozzle. As each bag is filled, it is check-weighted and material is added or removed as necessary.

At the final station in the department, tops of filled bags are sewn closed. The bags are then palletized and moved to storage.

Circle No. 102 on Reader Service Card

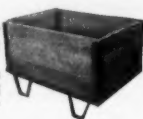
**CUT YOUR  
HANDLING  
COSTS!**

With Osborn's Platform Skids  
and Bottomless Stacking Rings



Type L-2500#  
Type M-3500#  
Type H-5000#

Angle Iron Bound  
Hardwood, Heavy  
Bar Steel Formed  
Legs  
Replaceable Decks  
Built for Hard  
Usage with Min-  
imum Upkeep.



**C. D. OSBORN**

AND COMPANY

728 Division Ave.

GRAND RAPIDS, MICHIGAN

Distributors' Inquiries Invited

*"I'm Glad  
My Boss Got  
Gee-Vee Line  
Conveyors!  
Boy, Are they  
Light!"*

**LIGHT!**

ALUMINUM  
FRAME  
WITH  
ALUMINUM  
WHEELS

Only **26**  
**POUNDS**

For 10-foot  
Section

● Also five-foot straight sections, 90° curves and tripod supports. Write for details and low prices. Immediate shipment.

**GEE-VEE-LINE**  
OAKS 4, PENNSYLVANIA

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132



F. O. B. Springfield, Ohio

**Buys a POWER Floor Sweeper**

Now the benefits of Parker power sweeping can be yours at the lowest price in the floor sweeping industry. Famous Parker "tough use" construction. Sweeps all kinds of floors . . . easily emptied . . . easily maneuvered in small spaces . . . pays for itself in a remarkably short time. Get our latest complete-line bulletin . . . get a Parker floor sweeper and prove its great man-saving, cost-saving operation on your own floors. Write PARKER SWEEPER CO., 78 BECHTLE AVE., SPRINGFIELD, OHIO.

**PARKER FLOOR  
SWEEPERS**

Manual and Motorized Models

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AUGUST, 1953 • FLOW

## Fast Handling for Forgings

**B**ULK FORGINGS are unloaded from highway trailers and loaded into tote boxes by a system which is saving some 150 man-hours per week for the Detroit Gear Division of the Borg-Warner Corp.

A fork truck equipped with a hydraulically operated shovel now unloads a 24,000 pound truckload of forgings in from three-quarters to one-and-a-half man-hours. The job formerly took from 16 to 18 man-hours, at a capacity of two truckloads per day.

The fork truck with shovel attachment is driven into the trailer, at the receiving dock, to scoop up the forgings. A hydraulic control, handy to the operator, tips the shovel back so that the load may

be carried to tote boxes without spillage. It also gives him control over the speed of dumping. When boxes are filled with forgings, they are taken to production machines for processing.

For full details on this equipment circle Number 141 on the Reader Service Card, which you will find bound into this issue.



## MATERIALS HANDLING COST REDUCTION

Let us help you find **extra profit** in your operations.

A preliminary survey — without charge will determine the potential savings and the cost. Write or phone for further information.

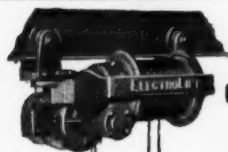
We invite your inquiry.

**Gemar Associates**

CONSULTING  
**MATERIALS HANDLING**  
ENGINEERS

Greenwich, Connecticut

Over 20 years Experience



he's a  
one-man  
dynamo  
with

## ELECTROLIFT WORM DRIVE HOIST

It takes only one man to safely and economically lift and spot heavy production materials with ElectroLift worm drive hoists. Smooth and fast moving, with either rope or push button control.

For details on speed, capacity and models, consult your ElectroLift representative listed in telephone directory.



**ELECTROLIFT**

ElectroLift, Inc.

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**FLOW • AUGUST, 1953**

These **Bond** Casters  
are Your Best Buys  
for TROUBLE-FREE SERVICE



36-A Series—Double Ball Race Swivel Caster



1-A Series—Stationary Caster



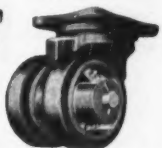
41-A Series—Structural Steel Stationary Caster



40-AH-VG Series—V-Grooved Wheel Structural Steel Heavy Duty Swivel Caster



3-A Series—Single Ball Race Swivel Caster



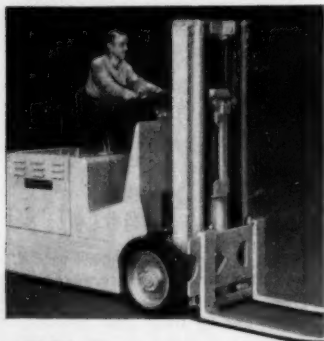
Dual Wheel Swivel Caster

Ask your industrial distributor . . .

he knows that for dependability, economy and trouble-free materials handling you just can't beat Bond Casters. Your distributor has the right Bond Casters for your jobs. Get your copy of Bond Catalog K-38 from him, or write direct.

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Manheim, Pennsylvania

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**430**

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"Engineer" is C. H. Collier,

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overhead cable costing only \$3800.00

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**\$7000.00**

**ANNUALLY**

**at**

**Honeywell**



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Write for NEW Bulletin No. 40

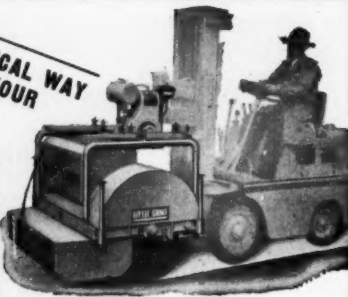
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4450 Clifton Avenue, Cincinnati 32, Ohio  
Representatives in Principal Cities



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TO CUT YOUR  
SWEEPING  
COSTS**

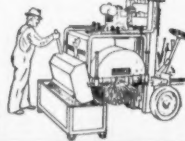
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FORK  
TRUCKS**



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- One man replaces sweeping crew . . . does faster, more thorough job.
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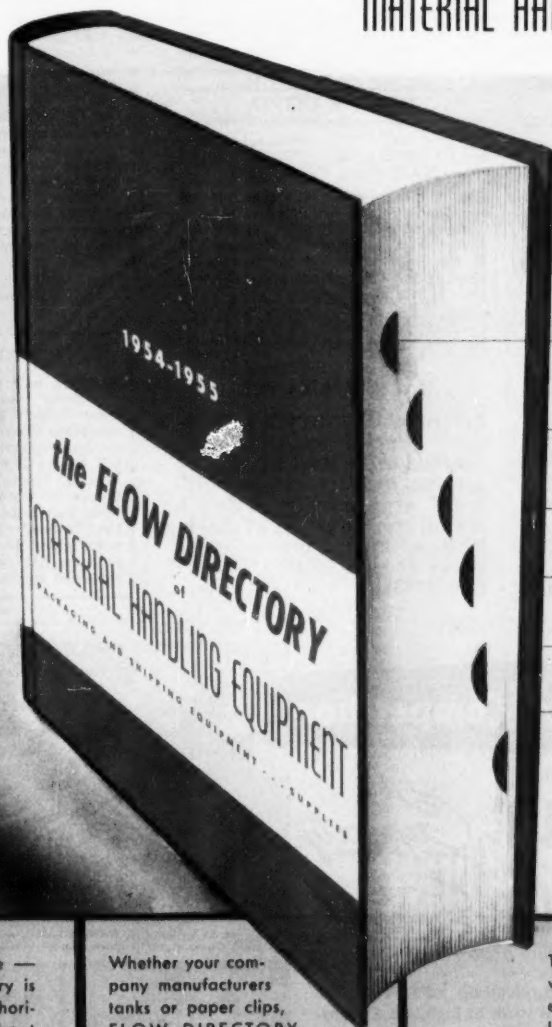
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PEORIA, ILLINOIS

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AUGUST, 1953 • FLOW



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### NEW TAB INDEX

ENGINEERING AND TECHNICAL  
DATA

WHO SELLS OR RENTS  
EQUIPMENT

MANUFACTURERS' CATALOGS

TRADE MARK INDEX

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and accessories.

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tanks or paper clips,  
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purchase the "right"  
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15-ton Coles Cranes, \$37,000. new, 4 years old, excellent condition, 360° movement with compensated steering. Price FOB Detroit, \$14,000.

Hughes-Keenan Roustabout, 5-ton capacity, adjustable boom, 180° movement. Price FOB Detroit, \$3,200.

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##### EXPERIENCED ENGINEER MATERIAL HANDLING

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#### SALES ENGINEER

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Here's a new FLOW service to aid those who hesitate to answer "blind" advertisements in our Help Wanted column. Rather than jeopardize your present job by having your letter fall into the hands of your own employer or some other unwanted firm, just send FLOW a list of the "taboo" firms along with your letter. If the advertiser is on your list your letter will be returned to you.

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with



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**WHEELER** *Speed!*

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Here's the 51 hp MM UTIL WHEELER feeding aggregate into asphalt mixing plant. Owner says UTIL shuttle gear lets him double his loading speed.



MM maneuverability lets Wheelers work in tightest spots. Handling ease cuts operator fatigue, boosts operator efficiency.

# MINNEAPOLIS-MOLINE MINNEAPOLIS 1, MINNESOTA

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It Loads Automatically  
Three style wheels: metal, rubber on metal and pneumatic. Capacity 1000 lbs. 22" wide for narrow openings. Weight 85 lbs.

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Item NS-415M \$6775 (Roller bearing, 6" x 2", all-metal wheels).  
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Item S-941

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leak proof  
**AIR VALVE**  
—For Maximum Machine Tool Efficiency—  
give you perfect, leak-proof air power control every split-second of machine tool operation. Ideally suited where air is used for cleaning, drying, cooling, positioning or ejecting. Recommended around punch presses, die casting machinery, drill presses, in reaming, broaching and many other operations. Provide ample air volume for operation of single or multiple jets. Mount in any position, to operate at any angle unaffected by vibration.

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Item S-230

**BARREL CRADLE**  
Item S-416

**Automatic DUMP BOX**  
Item S-445-B

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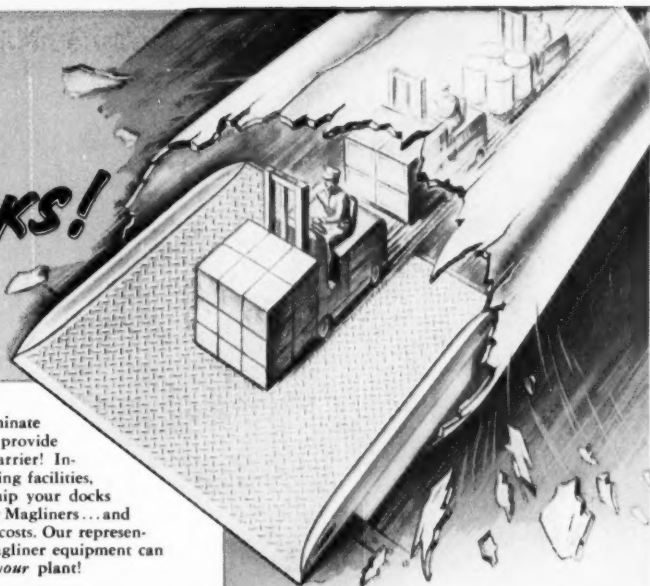
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A barrel tilt for controlled, precision dumping or pouring. Ideal for chemicals, solvents, powders, etc. Turns 360° through worm drive. Equipped with two safety type locking devices and all-steel welded yoke. Hand-operated chain drive.

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Positive protection against slippage while board is in use. Fully adjustable.

## Mag Liner MAGNESIUM DOCK BOARDS

### FOR TRUCK AND RAIL DOCKS!

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Custom-engineered to your exact loading requirements! Rated capacities to 20,000 lbs.! Lightweight — easily handled and positioned by one man.

Write For Bulletin DB-203

Write For Bulletin DB-204



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Write For Bulletin SK-801

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- Capacity-rated to 450 lbs. — and more!
- 25% greater-than-average carrying capacity — handles 5 cases with ease!
- All parts replaceable! No weld failures — no costly truck scrapping!



Write For Bulletin HT-101

# MAGLINE INC.

PINCONNING, MICHIGAN

Manufacturers of

Magnesium Hand Trucks • Dock Boards • Catwalks • Bridges • Safety Blocks • Safety Tongs • Can Forks

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THE FIRST magazine exclusively in the material handling field FLOW—1945

THE FIRST to recognize the growing importance of the material handling equipment dealer FLOW FRANCHISE CIRCULATION—1945

THE FIRST magazine to "get behind" an all-industry show FLOW—1947

THE FIRST (and only) to publish an all-inclusive directory for the industry FLOW—1947

THE FIRST to help standardize the nomenclature in the field FLOW DIRECTORY—1947

THE FIRST to "get-behind" the formation of the present Material Handling Institute FLOW—1948

THE FIRST to recognize that there is a "major" and a "marginal" market in its field FLOW QUARTERLY—1951

AND NOW THE FIRST to stabilize used industrial truck prices with a USED TRUCK PRICE BLUE BOOK

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CLEVELAND 13, OHIO

Superior 1-9622